



**Effect of Internal Auditing Practices on Performance of a Public
Higher Education Institution**

**By
Mvelo Siyaya**

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Supervisor: Prof Oludayo O. Olugbara (PhD)

Co-supervisor: Dr Lulu F. Jali (DBA)

DECLARATION

I, Mvelo Comfort Siyaya hereby to proclaim that this dissertation is my own work. All the content used in this dissertation from other sources have been acknowledged by means of both in-text and list of references. This dissertation has only been submitted by me for the fulfilment of a Master of Accounting: Internal Auditing, in that way, it has not been submitted before for assessment in Durban University of Technology or to any other institution.

10 July 2020

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Mvelo Siyaya

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Date

Approved for final submission

30/03/2021

.....

Prof O. O. Olugbara (PhD)

.....

Date

31/03/2021

.....

Dr L. F. Jali (DBA)

.....

Date

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Authors: Mvelo C. Siyaya, Oludayo, O. Olugbara, and Lulu, F. Jali

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LIST OF ACRONYMS

CAATs	Computerised-Assisted Audit Techniques
CAE	Chief Audit Executive
CCSA	Certification in Control Self-Assessment
CEO	Chief Executive Officer
CGAP	Certified Government Auditing Professional
CIA	Certified Internal Auditor
CFSA	Certified Financial Services Auditor
CRMA	Certification in Risk Management Assurance
DUT	Durban University of Technology
IIA	Institute of Internal Auditors
IAF	Internal Audit Function
IEEE	Institute of Electrical and Electronics Engineers
ISPPIA	International Standards for the Professional Practice of Internal Auditing
IT	Information Technology
KPIs	Key Performance Indicators
LNCS	Lecture Notes in Computer Science
PI	Performance Indicators
QAIP	Quality Assurance and Improvement Program
RQ	Research Question
SOX	Sarbanes-Oxley Act

ABSTRACT

The internal auditing value addition in organisational processes has been an issue of global concern to almost all investors of internal audit services. Investment in internal audit practices is expected to yield returns in effective organisational governance, risk management and internal control processes. However, there is a reported lack of evaluation studies that explore the effect of internal audit practices on organisational performance. This critical issue of not adequately evaluating the effect that internal audit brings to organisational processes can be partially explained by the shortage of adequate internal auditing evaluation methods and tools. The overarching aim of this study was therefore to fill this inherent void by investigating the effect of internal audit practices on organisational performance to appropriately determine the extent of internal auditing effects on business processes. The advanced evaluation model of evaluating the effects of technology systems on organisational performance indicators was applied for this purpose in this study. This model has been validated in a case study of two departments in a public higher education institution which invests heavily in internal audit practices, as mandated by the Public Finance Management Act 1 of 1999 (Republic of South Africa, National Treasury 2017).

In this study, the advanced evaluation model allows the institution to determine the extent to which operational and overall performance can be boosted through automational, informational, and transformational effects of internal audit practices. In addition, the study results have revealed the benefits of internal auditing of non-financial processes as well as financial processes: the results have confirmed a shift of internal audit practices from finance-based activities to more value adding operational activities. Moreover, this study observed that the effect of internal audit practices on organisational performance depends on factors such as independence of internal audit activity, competence of internal auditors, internal audit quality, information technology tools, relationship between internal and external auditors, and effective audit committee. This study found that compliance with internal policies and procedures is the most crucial performance indicator in the public higher education institution studied. In summary, the findings of this study, using an advanced evaluation model validated the benefit of internal auditing as a tool to help improve performance of an organisation.

CHAPTER 1: INTRODUCTION TO THE STUDY

1.1 Background to the Study

Many organisations around the world have voluntarily decided on the use of internal audit services rather than relying only on external audit services, although the latter is required according to the law. In the Republic of South Africa, the Companies Act 71 of 2008 does not mandate companies to have their operations internally audited. However, the Public Finance Management Act (PFMA) sec38(a)(ii) requires that public institutions need to establish and preserve a system of internal audit with an audit committee giving control and direction (Republic of South Africa, National Treasury 2017). Literature shows that the main motivation for organisations to decide on internal audit services is associated with the value it adds in achieving organisational objectives. These objectives involve strategic, operational, compliance and reporting objectives. Since institutions of public higher education operate as corporate entities, their systems also incorporate risks. As a result, in response to section38(a)(ii) of PFMA, the Council of Higher Education decided to implement a system of internal audit as the control mechanism to respond to the high risk. Salehi (2016) found that not all internal audit departments assist organisations to achieve their objectives, but only those departments that are effective. Effectiveness of internal auditing practices in the performance of an organisation comprises one of the typical problems in the research of internal auditing. While various studies of internal audit effectiveness have been carried out in the past, adopting the results found in these studies may not be evident or adequate, due to organisational changes and the technological landscape that requires innovative analyses (Abou-El-Sood, Kotb and Allam 2015). Furthermore, the uniqueness of the internal audit activity in the organisation, as well as organisational issues to which it relates, requires new approaches of evaluating internal audit effectiveness.

As noted in previous research, new methods for evaluating internal audit systems are not easily achievable, resulting in organisations not evaluating their internal audit activities or not doing so adequately (D'Onza *et al.* 2015; Salehi 2016). The comprehensive current literature review reveals that there are insufficient studies

that review the effectiveness of internal auditing and its evaluation tools. The following studies focused on the effectiveness of internal auditing: Salehi (2016), Coetzee and Erasmus (2017), Lenz, Sarens and Hoos (2017), and Erasmus and Coetzee (2018). Having noticed the inadequacy of internal auditing effectiveness studies, the search for new internal audit effectiveness methods and measurements is of paramount importance to pursue. The constant evolution of internal audit practices and the complexity of their application in various business contexts makes the old methods less effective, thus requiring the development of new methods. However, previous internal audit evaluation studies have provided empirical and theoretical foundations for new research in the effectiveness of internal auditing domain. Soh and Martinov-Bennie (2011), D'Onza *et al.* (2015) and Lenz, Sarens and Hoos (2017) have emphasised that further research has to be conducted in the domain of internal auditing effectiveness, with the main focus being evaluation models and tools. In addition, it is imperative to examine the effect of internal audit practices on organisational processes, to determine if they remain necessary to the organisation (Alzeban and Gwilliam 2014). This study will expand on internal audit effectiveness research area by evaluating the effects of internal auditing in relation to operational and overall organisational performance, particularly in a public institution of higher education.

Prior studies in the area of internal audit effectiveness have focused on the providers of audit services (such as chief audit executives and external auditors) to evaluate the effectiveness of internal auditing. Limited attention was paid to the recipients of these audit services such as the managers and staff members of the audited departments (Alzeban and Gwilliam 2014; Salehi 2016; Lenz, Sarens and Hoos 2017). The feedback gathered from these parties would enhance the value added by internal audit services to the processes of the auditee. Therefore, this study offers a different approach by considering various groups when assessing internal audit effectiveness. This study plans to use senior managers, managers, and experienced non-management of the finance and human resource departments, who have interacted with internal auditors in their processes as respondents by administering the questionnaires. A process-based and scorecard model will be combined to analyse the data from this study.

1.2 Problem Statement

Evaluation of internal auditing effectiveness faces various methodological and conceptual concerns. The most prominent one is choosing the theoretical framework on which the evaluation research design is grounded. In considering the prior research, previous studies highlight that there is a bias-related issue in selecting the criteria to measure the effectiveness of internal auditing, hence there is no approved criteria to measure this variable (Alzeban and Gwilliam 2014; Ali 2018; Erasmus and Coetzee 2018). Another problem lies in the lack of studies which evaluate internal auditing effectiveness in South Africa, particularly in public higher education institutions.

In the same vein, there is mainly a huge concern with the measurement of organisational performance, that is, the dependent variable in several internal auditing studies of effectiveness. This variable is often measured in no more than two dimensions, whereas it is a multidimensional variable and too subjective (Bogićević, Domanović and Krstić 2016).

In summary, little research has been conducted which links the effects of internal audit practices on organisational performance (Alzeban and Gwilliam 2014; Salehi 2016; Lenz, Sarens and Hoos 2017). Having identified this gap, this research will investigate the contribution made by internal auditing to the performance of a public higher education institution, using a unique process-based model combined with a scorecard model. According to D'Onza *et al.* (2015) internal audit departments' value-add should be clear and be measurable, because many organisations are experiencing reduced revenues and profitability. The internal audit should always aimed to add value by strengthening internal controls, risk management and governance processes of public higher education institutions.

1.3 Research Questions

These are the research questions arising from the research problem outlined above:

- i. What are the internal audit practices and the measures of their effectiveness in a higher education institution?

- ii. What are the measures of performance in public higher education institutions?
- iii. What method can be used to investigate the impact of internal audit practices on public higher education institutions?

1.4 Aim of Study

- i. The overarching aim of this study is to investigate the effect of internal audit practices on the performance of a public higher education institution in order to determine the extent of the value added by internal audit to the performance of the public higher education institution.

1.5 Overview of the Literature Review

The documentation of literature reviewed in this study is found in Chapter 2. The intention of reviewing the literature was to unpack the theoretical framework, conceptual framework and prior research that was conducted on the topic under review (Sekaran and Bougie 2016). A synthesis of current literature on the topics of internal audit practices, internal audit effectiveness, internal audit effectiveness factors and performance indicators in public higher education institutions was conducted. This study followed a well-designed approach when reviewing the literature known as a scoping review. The scoping review assisted the literature review to come up with the following main sub-topics (all in Chapter 2).

- i. Internal auditing practices and effectiveness
- ii. Models of internal audit effectiveness
- iii. Internal auditing effectiveness factors
- iv. Critique of existing internal audit effectiveness models
- v. Models of evaluating organisational performance

The current literature review aims to provide the theoretical background for internal auditing and outline the contributions of internal auditing to the performance of public higher education institutions.

1.6 Key Concepts

The following key concepts are used in the course of this research. Each of the concepts will be explained in detail during the literature review in Chapter 2. Since some of the concepts might have a different meaning when used in another context; these concepts are explained in the context of internal auditing.

1.7.1. Internal Auditing: Is the self-governing, impartial assurance and consulting function designed to add value and improve an organisation's operations. It aims to assist organisations to achieve their objectives by bringing a well-designed, disciplined approach to assess the effectiveness of governance, risk management, and control processes (Institute of Internal Auditors 2017a).

1.7.2. Objectivity: An impartial mental attitude that permits internal auditors to perform their tasks in such a way that their work is not compromised. Objectivity requires internal auditors to be unbiased so that their judgements are not influenced by others (Chartered Institute of Internal Auditors 2014).

1.7.3. Independence: The freedom from circumstances that threaten internal audit functions from effectively carrying out their responsibilities in an impartial manner. Independence is associated with the internal audit function, whereas objectivity is associated with the internal auditors (Chartered Institute of Internal Auditors 2014).

1.7.4. Internal Audit Function/Activity: A division, department, team of consultants in-house or outsourced, that provide independent, objective assurance and consulting activities designed to add value and enhance an organisation's operations. Internal audit function (IAF) enhances organisation's operations by evaluating the effectiveness of governance, risk management, and control processes (Coetzee *et al.* 2017).

1.7.5. Internal Auditor: Human being who provides objective assurance on the effectiveness of governance, risk management, and governance processes.

Internal auditors have a much broader function than external auditors (Chartered Institute of Internal Auditors 2015).

1.7.6. Add value: “Internal audit function adds value when it provides objective and relevant assurance, and contributes to the effectiveness and efficiency of governance, risk management and control processes to the organisation” (Zinca 2016).

1.7 Overview of Research Methods

The methodology of this study comprised the following three procedures which were the result of the responses to the research questions posed by the research problem:

Procedure 1 addressed research question 1. The method that was followed to identify internal audit practices and measures of their effectiveness was a scoping literature review.

Procedure 2 addressed research question 2. A scorecard model was employed to identify measures of performance in a public institution of higher education. The data collected by the questionnaire which was administered in two departments of the public higher education were studied in order to match responses from research questions 1 and 2.

Procedure 3 addressed research question 3. A combined research model consisting of a process model and a scorecard model was employed to link internal audit practice effects on performance in a public higher education institution.

1.8 Significance of the Study

This study on internal audit effectiveness develops the knowledge base that currently exists in this area. In previous internal audit effectiveness studies, little research considered the effect of internal auditing practices on the overall organisation, or specifically on public higher education institutions. Moreover, this is thought to be the first study to validate the advanced evaluation model which combines a process-based model and a scorecard model in internal auditing. This study integrated the two models (process model and scorecard model) with the intention of establishing the degree of influence of internal auditing practices on the performance

of a public higher education institution. The study was able to evaluate the effect of the internal audit process and performance indicator factors of effective internal auditing of the institution. This model is not limited to a particular institution. Different organisations may be able use this model because it enables measurement of the effect of internal audit on the performance of the organisation.

In addition, the findings of this research could provide ideas for future studies on internal audit effectiveness factors.

1.9 Dissertation Outline

The current study offers a comprehensive assessment of the internal audit effectiveness background, methodological approach, data analysis, and discussion of empirical research results found in the study. The structure of the dissertation is organised as follows.

Chapter 1: Introduction

Presentation of the research problem and the research questions produced from the problem statement, together with the research. The conclusion of this chapter highlights the significance and the content of the dissertation.

Chapter 2: Literature Review

Literature reviewed in this study covered the concepts, definitions, and perspectives of internal audit effectiveness and laid a theoretical foundation for the research questions and the methodological approach of this study. The literature review provides an in-depth knowledge base of current internal audit effectiveness measurement models and the critical factor variables affecting internal audit effectiveness. In addition, performance measures of higher education institutions were discussed.

Chapter 3: Research Methodology

The approach used for the execution of this study is outlined in this chapter. It describes the methodology used to investigate and answer the research questions. It outlines the data collection methods and models that were used for data analysis.

Chapter 4: Empirical Results

The empirical results from the data collection is presented and discussed in this chapter. The findings are analysed, interpreted and discussed in accordance with applicable literature and the aim of the study.

Chapter 5: Summary, Future Research and Conclusion

A summary of the study is presented in this section of the study, containing the identified process effects of internal audit as proposed by the internal audit effectiveness model of the study, as well as the importance of the current study in contributing to the body of knowledge in research and practice. Moreover, this section of the study presents guidance for those with willing to carry out future research in the area of internal audit research.

1.10 Summary

The current chapter has provided the main points of the research problem which led to the research questions of the study. These research questions have motivated the achievement of the aim of the study. The research methodological steps used to answer these research questions were initiated with a clear delineation of the overall process of the research. The significance of the study in the internal audit area was described. The following chapter will review the existing internal audit effectiveness concepts, measurement, factors and models in order to identify the weaknesses in solving the research problem.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This study attempts to address the current gap in the knowledge about the effectiveness of internal auditing. To address this gap, this study uses a scoping review technique to review the literature relevant to internal audit effectiveness. This scoping review technique is used in this study for its ability to rapidly identify the key concepts supporting a research area and the key sources of information that are available. This enables a broader review of a research area that has not been reviewed comprehensively before (Schmidt *et al.* 2018). A scoping review approach is useful for this study since it is evident that the area of internal auditing effectiveness has not been evaluated sufficiently (Alzeban and Gwilliam 2014; Salehi 2016; Lenz, Sarens and Hoos 2017). Previous researchers have called for further research studies to address this gap in internal auditing.

This chapter commences by presenting a full view of internal auditing practices and effectiveness, including concepts and arguments. Next, models of internal auditing effectiveness are discussed followed by internal audit effectiveness factors. Critiques concerning the models of internal auditing effectiveness to date are also made with the intention to bridge the identified gap. Lastly, this chapter discusses general measures of performance together with models used in the context of higher education.

2.2 Internal Auditing Practices and Effectiveness

Various systems are implemented by organisations to safeguard sound governance processes; internal auditing is considered as one of the principal systems to address good corporate governance (Lenz, Sarens and Hoos 2017). According to Joksimović and Alseddig (2017), the success of internal auditing is linked to its expanded scope to risk management and internal controls. Likewise, Cox (2017) believes that internal audit extension to effective management of risk, internal controls, and governance processes have renewed an interest in performing internal audits. Nowadays, fraud risk is considered an important risk that negatively impacts

businesses in financial and non-financial ways (Munteanu *et al.* 2016). To respond to this situation, organisations enforce various mechanisms to prevent and detect it in time. Fraud cases are largely related to poor internal controls, therefore, more attention nowadays is being given to internal audit and internal controls as key elements of these mechanisms (Petraşcu and Tieanu 2014). Internal audit has drawn the attention of many organisations, including public higher education institutions, as it aims to add value by responding to specific organisational needs (Kong *et al.* 2018). Dawuda, Ataribanam and Joseph (2017) state that the demand for internal auditing, especially in public sector institutions, arises from the need to safeguard effective governance processes and boost the confidence of citizens about the management of economic resources. Sobel *et al.* (2017) emphasise that internal audit is considered useful if its focus is on adding value in the following three areas of the organisation: risk management, internal controls and effective governance structures. However internal audit does not take responsibility for these areas. The governing body of the organisation oversees the governance structures, and management oversees internal controls and risk management structures. Collaboration by the governing body and management is of paramount importance to effectively implement all these structures.

The role of internal auditors is to examine the effectiveness through assurance engagements in those three structures (Joksimović and Alseddig 2017). Sobel *et al.* (2017) explain these three key areas of internal auditing as follows:

- i. Governance process entails guidance that the governing body provides to management with the intention of assisting them to achieve the objectives of the organisation.
- ii. Risk management can be defined as a practice that involves identifying context and business risk and prioritising it accordingly to respond to negative uncertainties that may affect the achievement of business objectives.
- iii. Internal control includes organisation policies and structures that are in place to ensure that risk is managed, and that governance structures are operative.

The Institute of Internal Auditors states that value-adding internal audit functions are considered to be effective (Chartered Institute of Internal Auditors 2014). Consequently, it is essential to study the effectiveness of internal auditing with the aim

of assessing its value-adding potential. Accordingly, Abuazza *et al.* (2015) have shared two fundamental reasons for evaluating effects of internal auditing. The first one is to test the quality performance of the internal audit function with the intention of determining if the function is performing in a suitable manner. Secondly, the evaluation can assist both internal auditors and internal audit functions to boost their level of performance.

2.2.1 Nature of Internal Audit Practices and its Process Effects

In the past, internal auditors were tasked with the examination of the financial accounts of the organisation and to report internally on their fair presentation of these accounts (Mihret and Woldeyohannis 2008; Drogalas, Karagiorgos and Arampatzis 2015; Zinca 2016). However, a major shift in the scope of internal auditors in response to global business practices was noted in the literature reviewed. Global business practices have created the expansion of internal audit practices to include advisory practices for the audit universe management and the board of directors in managing the risks identified (Yasseen 2011; Jiang, Messier and Wood 2016). Accordingly, Drogalas and Siopi (2017) recommended that internal auditors should be tasked to assess if management responses to risk management are keeping the identified risks within acceptable levels. When reviewing internal audit literature in the Americas, Hass, Abdolmohammadi and Burnaby (2006) found a major shift of internal auditing practices with the United States of America towards value-adding internal audit practices. Such findings reiterate the importance of evaluating the value-adding potential of current internal auditing practices. These authors further stated that “before the approval of the Sarbanes-Oxley Act (SOX) in the United States of America in 2002, fraud detection was the main internal auditing focus area, rather than fraud prevention. After the approval of SOX internal audit practices in the United States of America became compliance based. Branson, Nation and Rothe (2018) explain that internal audit deals with the assessment of organisational compliance with procedures, policies, plans and regulations. The enactment of SOX has expanded the internal audit role in evaluating the effectiveness of governance processes (Mihret, James and Mula 2010).

A review of the Asia Pacific internal audit literature by Cooper, Leung and Wong (2006) and a review of European internal audit literature by Allegrini *et al.*

(2006) confirms this paradigm shift in internal auditing practices. According to Kapoor and Brozzetti (2012), the practices of internal auditors vary significantly when looking at the period of 1940s to the period when this study was conducted. In the early 1940s, internal audit focus shifted from checking accounting records to a more compliance-based approach that was aimed at refining business processes and helping management with policy and procedure design and implementation. From 1990 to date, with the advancement of technology, almost all business practices have necessitated internal auditing practices to be value-adding and thus apply sophisticated computerised tools when evaluating overall processes of the organisation.

Looking at the African context, Al-Akra, Abdel-Qader and Billah (2016) reviewed internal auditing in the Middle East and North Africa. Their study focused on the ethical matters pertaining to internal auditing, including the acceptable attributes of internal auditors, and comparisons between assurance and advisory services performed on the Middle East and North Africa. Al-Akra, Abdel-Qader and Billah (2016) found that the majority of the region has introduced a reform of their internal audit function, however, more attention should be given to consulting activities, mainly on governance structures, risk management, internal controls. Internal auditing in the South African context is fairly new but rapidly growing, the reviewed literature indicate that internal audit practices varies between assurance and advisory services (Yasseen 2011; Plant 2014; Erasmus and Coetzee 2018). Despite the differences in sector objectives, internal auditing is present in both public and private sectors of South Africa (Coetzee and Erasmus 2017). In both sectors, internal auditors are driven to assist organisations to accomplish their objectives through a continuous independent evaluation of governance processes, risk management and internal controls. Despite the argument that the nature of internal audit practices is mostly the same in both sectors, Alzeban and Gwillian (2014) argue that public sector internal audit operates within a service-orientated and legislative environment whilst private sector internal auditors are more concerned about costing and profitability factors. Erasmus and Coetzee (2018) further elucidate that internal auditors in the South African public sector are mostly concerned about the achievement of public sector service delivery objectives and the utilisation of taxpayer's money to achieve those objectives. The most prominent objective of the public sector relates to service delivery to the country citizens, whereas the private sector's main objective is to maximise profit and

shareholder wealth. Ackermann (2017) reviewed the status of internal audit practices that internal audit functions must uphold in the conduct of their work in South African metropolitan municipalities, found in this study was that internal audit functions of the metropolitan municipalities chosen were complying with key internal audit practices such as; approval of audit charter, independency and objectivity, and approval of audit plan as perceived by their Chief Audit Executives (CAE). When Ackermann (2017) reviewed the annual reports, data showed a scant evidence to support the perception of the CAEs with 75% showing that internal audit functions of the metropolitans are not regarded as independent and objective. Moreover, Ackermann (2017) articulated that the differences in CAEs perceptions and the review of annual reports showed a need for a consideration of a possible policy guidelines for the disclosure of internal audit practices in the public sector annual internal audit reports.

In the previous era, as detailed above, the focus of practices of internal auditors was limited to financial records of the organisation with the intention of providing internal assurance on the fairness of these records. In recent years, the framework of internal auditing standards for professional practice of internal auditing proposes a wide and inclusive role for internal auditing. The focus of the internal audit role is to review the high-risk processes of the auditee and provide an independent opinion whether the auditee's objectives are being attained; when necessary, recommendations are offered by an auditor to help improve the reviewed processes (Abuazza 2012). This current review is extended to non-financial records with the intention to add value to the overall processes of the organisation (Sobel *et al.* 2017). Considering this paradigm shift, the Chartered Institute of Internal Auditors (2015: 6) now defines internal auditing as: "An independent, objective assurance and consulting activity designed to add value and improve an organisation's operations. It helps an organisation accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes".

This definition also includes the extended role of internal auditors to assist management with a risk management framework assessment in the form of assurance and consulting services. Zinca (2016) states that "the recent definition of internal auditing has shifted its focus on the internal audit function to add value by improving the operations of the organisation and by evaluating and improving the effectiveness of the organisational risk management, controls and governance processes". In other

words, this current definition of internal auditing confirms all the arguments shared about the rapid expansion of the scope of the internal audit to add value to overall processes of the organisation rather than focusing on organisational finances alone. Furthermore, Mihret and Woldeyohannis (2008) state that “modern operational auditing seeks to increase the rate of return on capital, that is, to value add”. The focus areas of internal auditing over the years as stated by the Institute of Internal Auditors are summarised in Figure 2.1.

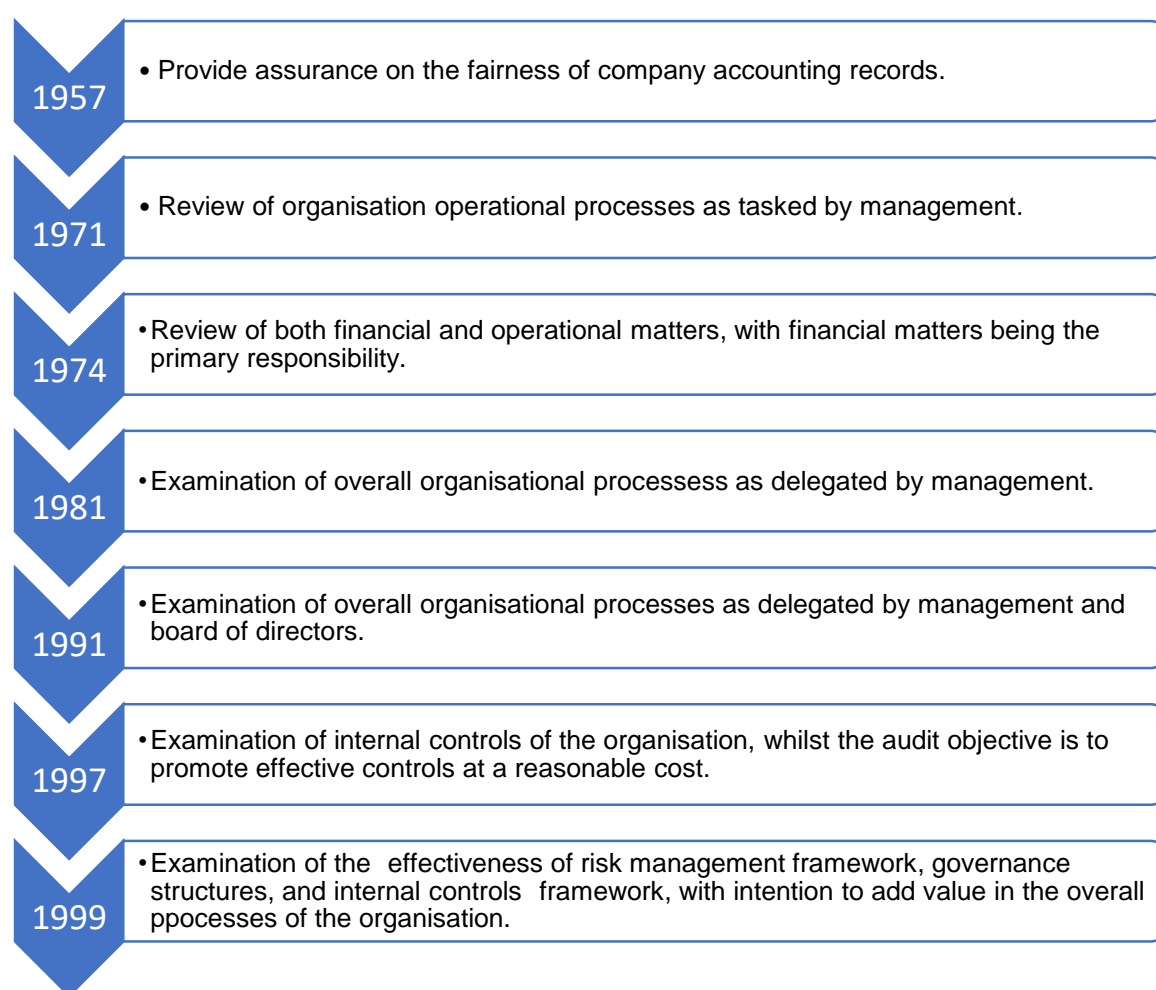


Figure 2.1: Internal auditing definition, developmental stages

Source: Abuazza *et al.* 2015: 48

2.2.2 Process Effect of Internal Audit Practices

As noted above, the transformation of internal auditing to risk management processes and governance structures are aimed at strengthening the organisational control environment, thus improving organisational performance. The literature has

shown that internal audit practices affect organisational processes positively in achieving the planned organisational objectives. The studies of Salehi (2013), Ziniyel, Otoo and Andzie (2018) and Chang *et al.* (2019) claim that ensuring reliability of financial information, record maintenance, compliance with established financial instructions on expenditure, and a decreased loss of assets are the results of effective internal audit practices. Adetiloye, Olokoyo and Taiwo (2016), Kulikova and Satdarova (2016) argue that internal audit practices positively affect the organisational processes by revealing mistakes and indiscretions early, before the cause is unmanageable. Petraşcu and Tieanu (2014) and Asiedu and Deffor (2017) state that internal audit practices enhance the effective utilisation of resources of the organisation, and in that way, fraud risk, corruption, and misappropriation of funds may be reduced.

According to Piper (2015), Asiedu and Deffor (2017) and Drogalas and Siopi (2017), the expansion of the scope of the internal audit to evaluate organisational governance structures may positively impact organisational processes. For example, such an audit may result in better management of the operation, revised organisational structures, centralisation of operations, development of cross functional competencies, and improvement of financial, operational, and compliance status.

2.2.3 Measurement of Internal Audit Effectiveness

There are various definitions and perceptions that exist in the domain of internal auditing effectiveness, and many authors consider the term 'effectiveness' to be too subjective. Lenz, Sarens and Hoos (2017) define effectiveness as the potential for the achievement of the objectives and goals. Arena and Azzone (2009) view effectiveness as the ability to obtain results that are consistent with the targeted objectives. Shamki and Alhajri (2017) state that if the outcomes align with the established objectives, that programme is effective. Having considered all the above definitions of effectiveness, it is concluded that the effectiveness of internal auditing lies in its ability to achieve audit objectives that are in line with the targeted objectives of management. Badara and Saidin (2013) suggest that all organisations irrespective of their sector should assess whether the practices of internal auditing are effective in achieving predetermined objectives in an efficient manner. However, Lenz and Hahn (2015) argue that it is possible for the audit practice to be effective but not efficient, because effectiveness has to do with the achievement of targeted objectives, while

efficiency is concerned about how well those objectives are achieved, given scarce resources.

In order to determine the effectiveness of internal auditing, it is important to find relevant methods to measure the performance of internal audit activity based on globally approved internal auditing standards. Dellai and Omri (2016) classify these methods as process, output, and outcome measures. Process measures relate to the internal auditor's ability to plan and execute the processes involved in carrying out the audit. Output measures are related to the internal audit activity's ability to satisfy the auditee. Lastly, outcome measures look at the improvement of corporate performance because of internal audit practices. There are a limited number of studies that have measured the effectiveness of internal auditing. Some of these studies focused on the supply-side while others focused on the demand-side when measuring effectiveness of internal auditing. The supply-side of effectiveness of internal auditing focuses on those who supply internal audit activities, for example internal auditors, while demand-side focuses on the areas being audited, for example, the audited departments (Lenz and Hahn 2015). D'Onza *et al.* (2015) apply a regression model to measure internal audit effectiveness thus obtaining insight from the supply-side only. Coetzee and Erasmus (2017) argue that the supply-side approach limits the study to the views of the chief audit executives only but not the recipients of the service, so in that way the views may be biased.

Evaluation of the effectiveness of internal auditing is considered very important, Badara and Saidin (2013) suggest that public sector internal auditing enhances the level of management accountability, staff compliance, and subsequently results in the effective management of public funds. Thus, the choice of methods for measuring internal audit effectiveness depends upon the targeted objectives (Badara and Saidin 2013, 2014). Many researchers have considered internal audit effectiveness measurement as an important tool to evaluate the value that internal auditing adds to organisations. However, considering previous studies, there are no acknowledged criteria to measure the effectiveness of internal auditing. As a result, this study will outline different approaches which are commonly used by different researchers to measure internal audit effectiveness and come up with the approach to be used in this study. The commonly used criteria to measure internal audit effectiveness are discussed as below.

2.2.3.1 Implementation of Recommendations of Internal Auditors

Internal auditors perform risk-based audit engagements to provide assurance to the auditee that its assets are safeguarded, and, where necessary, they provide the auditee with recommendations to improve weaknesses noted in the process (Griffiths 2016). In addition, Alzeban and Sawan (2015) suggest that follow-up processes to enact the suggested recommendations be established by internal auditors. Various studies have considered implementation of recommendations made by internal auditors as a crucial approach to measure the effectiveness internal auditing (Soh and Martinov-Bennie 2011; Alzeban and Gwilliam 2014; Mustika 2015; Salehi 2016; Coetzee and Erasmus 2017; Erasmus and Coetzee 2018). Erasmus and Coetzee (2018) ranked the implementation of recommendations of internal auditors as being the most appropriate to measure the effectiveness of the internal audit, followed by the trust placed by the external auditors on the internal auditor's work. Further authors claim that the extent to which internal audit recommendations are implemented is the most suitable measure of internal audit effectiveness. Dellai and Omri (2016) point out that implementation of internal audit recommendations as a suitable measure of internal audit effectiveness has limitations, as it does not account for qualitative differences between recommendations, and that implementation of the recommendations is at least partially beyond the control of the internal audit.

Arena and Azzone (2009) and Ali (2018) suggest that the percentage of implemented suggestions increases when the audit committee is involved in internal audit activities, the audit function is led by chief audit executive affiliated with professional board of internal auditors, and the competence of internal auditors is high. Arena and Azzone (2009) encourage internal auditors to attain professional certifications (certified internal auditor certification in particular) to enhance the likelihood and willingness of managers to implement the recommendations of the internal auditors.

2.2.3.2 Reliance Placed by External Auditors on the Work of Internal Auditors

The level of satisfaction by external auditors with internal audit practices has been used as an internal audit effectiveness measurement tool (Abuazza 2012; Alzeban and Gwilliam 2014; Erasmus and Coetzee 2018). The International Standards for the Professional Practices Framework (ISPPF) Standard 2050 points

out the importance of coordination between internal auditors and external auditors to ensure proper audit coverage and minimise duplication effort (Institute of Internal Auditors 2017a). This coordination indicates not only the trust on the work of internal auditors but also decreased external audit fees (Fourie and Erasmus 2009; Abuazza *et al.* 2015). Reducing the external audit fees means the internal audit function is economical and thus effective and efficient.

2.2.3.3 Internal Auditing Standards for Professional Practice

Internal audit practices performed are governed by rules and procedures set by the professional body, these standards are issued by the Institute of Internal Auditors (IIA) globally. The IIA Netherlands (2016) states that internal audit practices are considered effective if internal auditors comply with International Standards for the Professional Practice of Internal Auditing (ISPPIA). Badara and Saidin (2014) and Dellai and Omri (2016) have considered this approach useful by utilising it to measure internal audit effectiveness. However, authors such as Alzeban and Gwilliam (2014), Dellai and Omri (2016) and Salehi (2016) have identified this approach as weak because of its main focus on performance of procedures rather than considering the outcomes in terms of the expectations of relevant stakeholders such as audited departments, senior management and audit committee.

2.2.3.4 Satisfaction of the Needs of Auditees (Audited Departments)

A meaningful measure of effectiveness of internal auditing is when the expectations of customers are met (Lenz and Hahn 2015). This is in line with the King IV report, which stated that “customer is king, without the customer the business is not sustainable” (Ramalho 2016). This approach seeks to measure internal audit effectiveness in relation to the internal audit function’s ability to satisfy the needs of auditees as customers (Alzeban and Gwilliam 2014; Badara and Saidin 2014; IIA Netherlands 2016; Salehi 2016; Erasmus and Coetzee 2018). Arguments around issues associated with satisfaction of auditee about the work of internal auditors are revealed by Dellai and Omri (2016); these involve access to internal audit report by researchers and variation of the internal auditee expectations.

2.2.3.5 Internal Audit Planning

Internal audit planning was reported by Ernest and Young (2012) as the top approach to measure internal audit effectiveness (Soh and Martinov-Bennie 2015). According to IIA Netherlands (2016), this approach measures internal audit effectiveness by looking at the completion of audits in comparison to planned internal audits. Alzeban and Gwilliam (2014), Mustika (2015), Dellai and Omri (2016) and Salehi (2016) claim that internal audit practices are effective if the plan of audits is risk-based. Lenz and Hahn (2015) further explain that an effective internal audit is anticipated to review major areas of risk. To be effective, it is suggested that the internal audit communicate the results of the engagement on a timely basis (Zegers *et al.* 2017). Cox (2017) suggests that the progress of the plan be discussed with the audit committee with an explanation of the extent to which it has been achieved.

2.2.3.6 Improvement to Departmental Performance

IIA Netherlands (2016) defines the effectiveness of internal audit as the degree to which established objectives are achieved; hence the function needs to offer reasonable assurance that objectives of the audited department will be achieved. Salehi (2016) agrees that internal audit effectiveness refers to the ability of auditors to achieve established objectives within the organisation. These studies confirm that the internal audit function helps at both the organisational and departmental level. Furthermore, Salehi (2016) reiterates that organisational objectives must be clear and communicated to auditors to enable them to align their objectives with those established by management. In line with the authors mentioned above, Dellai and Omri (2016) regard the effectiveness of internal auditing to be its capacity to achieve both departmental and organisational goals. The researchers also emphasise that if internal auditing assists in achieving the departmental objectives, potentially, the targeted objectives of the organisation will be achieved as well.

Barisic and Tusek (2016) state that the measurement criteria of internal audit effectiveness may vary from one auditee to another. The IIA Netherlands (2016) suggests that the measurement method will differ per organisation. Furthermore, Barisic and Tusek (2016) mention that the degree of internal audit effectiveness related to the auditee's processes may be hard to calculate considering the different expectations of stakeholders. To mention a few, these stakeholders include: audit

committee, external auditors, audited department (auditees) and senior management. Since there are no approved criteria to measure the effectiveness of internal auditing as evidenced by the literature, the absence of criteria has provided the freedom to many researchers to decide on their approach when measuring internal audit effectiveness (Barisic and Tusek 2016). Previous studies utilised different approaches and measurement techniques of internal audit effectiveness.

Different researchers have shared their arguments regarding the limitations highlighted by the above methods to measure internal audit effectiveness. Several studies (mentioned in Table 2.1) consider the implementation of internal audit recommendations as the most suitable approach to measure internal audit effectiveness. The limitations of this method are that internal audit reports are not always available to researchers and internal auditors cannot force management to implement the ways recommendations (Salehi 2016). With regard to this issue, some authors argue in favour of the achievement of internal audit objectives (mentioned in Table 2.1 below). This approach evaluates internal audit effectiveness by looking at the impact of internal audit practices on the audit process and organisational performance. Dellai and Omri (2016) argue that this approach is interesting, but it involves inherent difficulties.

Given the limitations of all the above approaches, measuring internal audit effectiveness is not an easy task for practitioners and academics. This study intends to highlight recent studies that have measured internal audit effectiveness. These studies are listed in Table 2.1.

Table 2.1: Summary of internal audit effectiveness studies

No.	Measurement criteria	Authors
1.	Implementation of internal audit function recommendations.	Cohen and Sayag (2010) Soh and Martinove-Bennie (2011) Abuazza (2012) Alzeban and Gwilliam (2014) Chartered Institute of Internal Auditors (2014) Mustika (2015) Barisic and Tusek (2016) Dellai and Omri (2016) Salehi (2016) Coetzee and Erasmus (2017) Erasmus and Coetzee (2018)
2.	Reliance placed by external auditors on internal auditor's work.	Abuazza (2012) Alzeban and Gwilliam (2014) Coetzee and Erasmus (2017) Erasmus and Coetzee (2018)

3.	Compliance with international standards for the professional practice of internal auditing (ISPPIA)	Badara and Saidin (2014) Dellai and Omri (2016) Institute of Internal Auditors (2018)
4.	Satisfaction of the needs of auditees (audited departments).	Cohen and Sayag (2010) Alzeban and Gwilliam (2014) Badara and Saidin (2014) Barisic and Tusek (2016) Salehi (2016) Coetzee and Erasmus (2017) Erasmus and Coetzee (2018) Institute of Internal Auditors (2018)
5.	Value adding activities	Cohen and Sayag (2010) Dejnaronk <i>et al.</i> (2015) Barisic and Tusek (2016) Coetzee and Erasmus (2017) Erasmus and Coetzee (2018)
6.	To evaluate and improve risk management	Alzeban and Gwilliam (2014) Mustika (2015) Dellai and Omri (2016)
7.	To evaluate internal control systems	Alzeban and Gwilliam (2014) Dellai and Omri (2016) Mustika (2015) Salehi (2016)
8.	To provide recommendations for improvement to auditee	Alzeban and Gwilliam (2014) Mustika (2015) Salehi (2016) Coetzee and Erasmus (2017) Erasmus and Coetzee (2018)
9.	Consistency of results with established objectives and goals	Alzeban and Gwilliam (2014) Mustika (2015) Salehi (2016)
10.	Internal audit planning	Soh and Martinove-Bennie (2011) Alzeban and Gwilliam (2014) Badara and Saidin (2014) Mustika (2015) Dellai and Omri (2016) Salehi (2016)
11.	Improvement to departmental performance	Dejnaronk <i>et al.</i> (2015) Dellai and Omri (2016) Salehi (2016)

All the measures of internal audit effectiveness mentioned in Table 2.1 were used by the researchers listed above. However, Alzeban and Gwilliam (2014), Soh and Martinov-Bennie (2015) and Erasmus and Coetzee (2018) point out that the criteria commonly used to measure effectiveness of internal auditing involves implementation of the internal auditors' recommendations by management, reliance placed by external auditors on work performed by internal auditors, satisfaction of auditee, capacity to plan and accomplish audits, improvement to departmental performance, and compliance with internal auditing standards.

This study will therefore measure the effectiveness of internal auditing based on the effectiveness of the internal audit function as perceived by auditees, specifically

the managers of audited departments and their respective staff, within the investigated organisation.

2.3 Models of Internal Audit Effectiveness

When compared to other investments such as external auditing, the effects of internal auditing on organisational processes has been insufficiently evaluated and further research is called for (D'Onza *et al.* 2015; Lenz, Sarens and Hoos 2017). Unlike an external audit where the focus is on providing an independent opinion on the reliability of financial statements, the effects of internal auditing on processes of the organisation varies from operational processes to the overall organisational processes, and as a result the evaluation of internal audit practices may be very complicated (FareedMastan *et al.* 2015; Ismael and Roberts 2018). Considerable means are required to adopt internal auditing practices in financial and organisational terms, yet organisations spend significantly on internal auditing confident of improving business performance. Therefore, evaluating the effectiveness of internal auditing on organisational processes is critical in order to help management determine the returns on their investment in internal auditing.

While recognising the complexity of the evaluation of internal audit effects, this study confirms that the effects of internal auditing are not adequately evaluated. This can be partially explained by insufficient methods and tools for the evaluation of internal audit effects. Nevertheless, some academics and institutions suggest some measurement models of internal audit effectiveness which could be useful in the development of a suitable research model for this study. As a result of the current literature review, this study categorises the effectiveness of internal audit evaluation models into: causal models, process models, scorecard models, and contingency models.

2.3.1 Causal Models

Causal models attempt to create a cause-effect correlation between an independent variable (internal auditing) and dependent variable (organisational performance). This model helps establish an arithmetical relationship between variables while not revealing how the variables are converted into value for the organisation (Kwon *et al.* 2018). Internal auditing and organisational performance have

been used in previous research to construct causal measurement models to guide the understanding of the relationship between internal audit effectiveness factors. The following section demonstrates some of these causal measurement models of effectiveness of internal audit as found in the literature.

Scholars such as Alzeban and Gwilliam (2014), Drogalas, Karagiorgos and Arampatzis (2015), Mustika (2015), Salehi (2016) and Ali (2018) have proposed the following as the most significant factors in the success of internal audit effectiveness: competence of internal auditors, internal audit function independence, management support, relationship between internal and external auditors, internal audit function size, and internal audit quality. These authors have measured internal audit effectiveness by the use of a multiple regression model which looks at the relationship the identified factors have on internal audit effectiveness. For example, Alzeban and Gwilliam (2014) suggest the conceptual model in Figure 2.2 for internal audit effectiveness evaluation; it must be noted that factors used in the model are also identified as having a significant relationship by those authors mentioned above. They emphasise that management support for the internal audit favourably influences internal audit effectiveness in Saudi Arabia, for example.

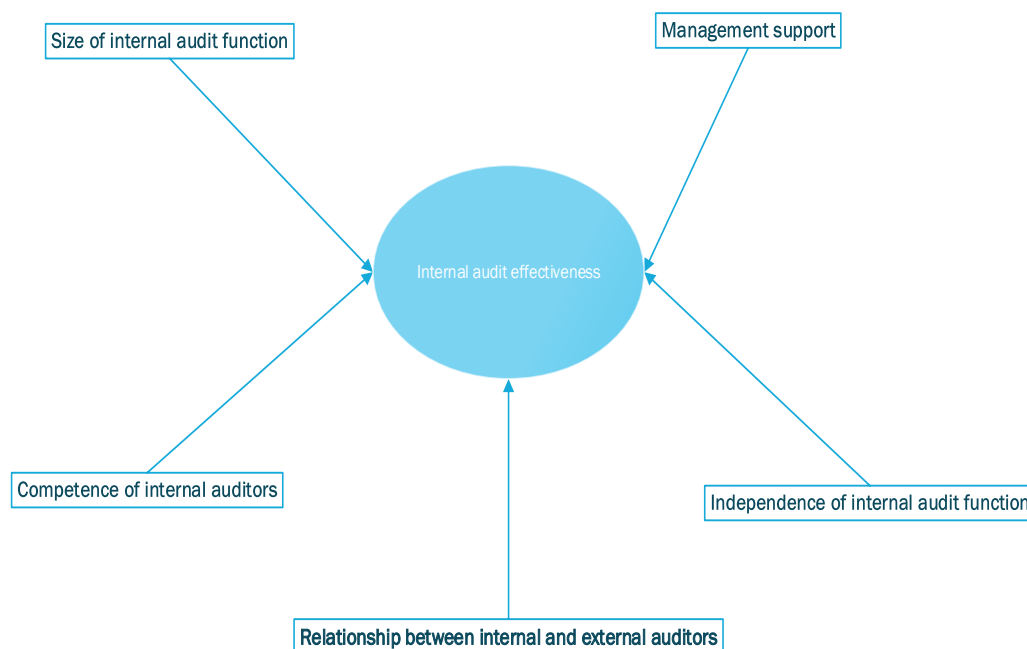


Figure 2.2: Internal audit effectiveness model
Source: Alzeban and Gwilliam (2014)

The conceptual internal audit effectiveness framework presented by Fareed Mastan *et al.* (2015) and Ahmed (2016) revealed five contributing factors to the effectiveness of internal auditing. In Ahmed's model presented below (Figure 2.3), additional factors such as audit quality and an approved audit charter are incorporated into the model of internal auditing effectiveness. Authors such as Hailemariam (2014), Rudhani, Vokshi and Hashani (2017) agree that internal audit quality and an approved internal audit charter contribute to the effectiveness of internal auditing. The measurement model used is multiple regression analysis with limitations in order to reveal the relationship the identified factors have to each other.



Figure 2.3: Internal audit effectiveness model on organisational performance
Source: Ahmed (2016), Ali (2018)

The conceptual framework of internal auditing effectiveness presented by Dejnaronk *et al.* (2015) makes an additional contribution to the body of knowledge. These scholars claimed to be the first to conduct an internal auditing evaluation study in the Kingdom of Thailand. Their model contains seven factors influencing internal audit effectiveness. These factors are: objectivity of internal auditors, independence, management support, risk-based audit plan, compliance with IIA standards, communication and reporting, and quality assurance and improvement programme.

Having used a multiple regression model and a structural equation model, their study found three new factors with significant influence on internal audit effectiveness: compliance with IIA standards, a risk-based audit plan, and the presence of a quality assurance and improvement programme (QAIP).



Figure 2.4: Internal audit effectiveness model

Source: Dejnaronk *et al.* (2015)

This is the only study that has used a structural equation model, developed from the framework shown above. However, this framework also does not show any relationship between the independent variables used in the study.

2.3.2 Process Models

Process models use chronological steps by which they convert investment assets of the organisation into value. Process models make it possible to develop clarity on how investments of the organisations are converted into assets, how these assets are utilised to yield anticipated returns, and how these effects transform into enhanced or weakened organisational performance (Uwizeyemungu and Raymond 2010; Gajic *et al.* 2014) . Thus, an internal audit system is implemented to benefit the organisation both at operational and managerial level, and in doing so, yields multiple automational, informational, and transformational effects which contribute to organisational value. According to Aldossari and Zin (2019) automational effects result in process efficiency, while informational effects result in process effectiveness and transformational effects result in process flexibility.

A process model has been used to assess the effect of internal audit practices. The United Kingdom's national treasury, as shown in figure 2.5, has recommended an internal audit quality assessment framework to address the effects of internal auditing in accordance with standards regulated by government (United Kingdom HM Treasury 2011). This framework focuses on results that enable the government to meet its planned services to communities. Furthermore, the national treasury expects that this framework measures the quality that the internal audit provides in an organisation, because the approach of the framework is not a "tick-box" but goes beyond compliance with standards alone. This framework also intends to provide internal audit functions with a framework by which to evaluate improvement in relation to their development plans and identification of corrective actions for areas that need improvement.

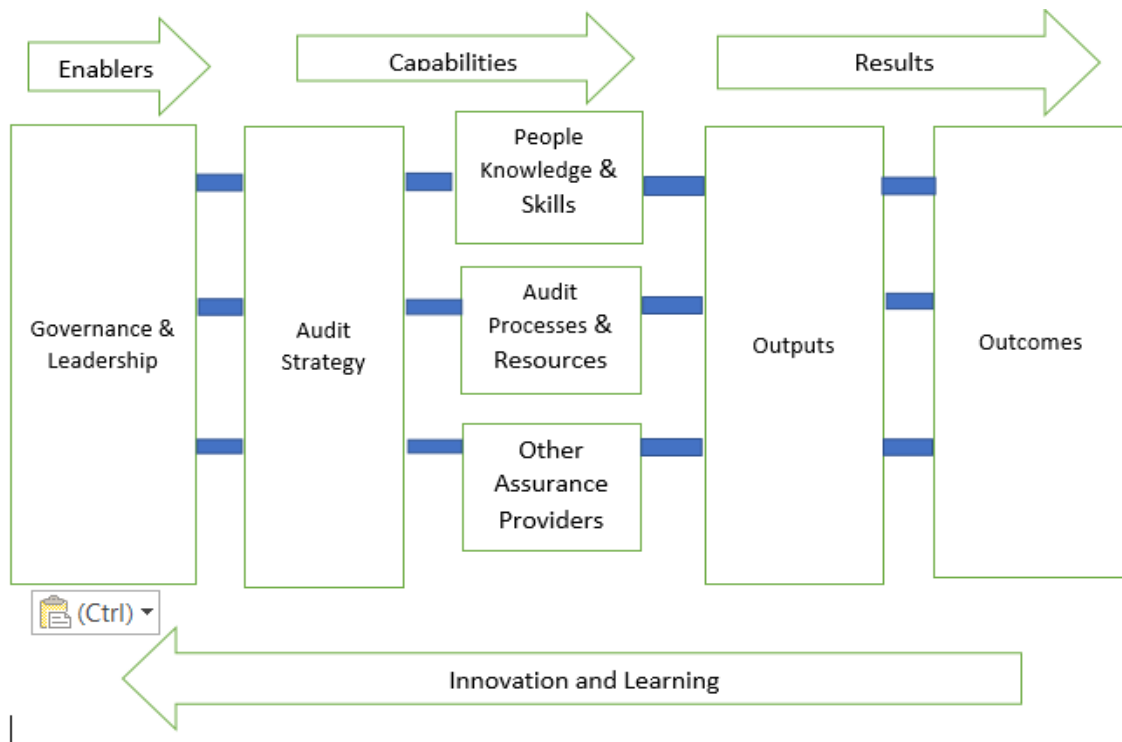


Figure 2.5: Internal audit quality assessment framework

Source: United Kingdom HM Treasury (2011)

The framework in Figure 2.5 has seven elements. These elements cover **enablers** for effective audit, the **capability** of the audit function to deliver, and the **results** of internal audit work. Enablers in the framework encompass the relationship between accounting officer, board of directors, audit committee, and internal audit that result in an effective internal audit and a good culture of business ethics and governance. Capability involves the way that the internal audit develops and sources a range of skills and knowledge, clearly states the objectives of the internal audit department and how they will be delivered, and provides effective engagement with appropriate assurance providers. Lastly, results encompass both outputs and outcomes such as the ability of the internal audit to communicate audit opinions and provide advice where needed, and support the governing body in decision-making by providing internal audit assurance (United Kingdom HM Treasury 2011).

2.3.3 Scorecard Models

Balanced scorecard is a model designed to enable the organisation or unit to determine its system effectiveness (de Andrade *et al.* 2018), and has also been used to evaluate the effectiveness of internal auditing. A balanced scorecard model

encompasses wide-ranging internal audit effects which mean that various indicators are contained in the one model. Using financial and non-financial indicators to measure the effectiveness and efficiency of internal auditing, the scorecard model (Figure 2.6) provides perspectives on auditee, audit committee, internal audit process, and innovation and capabilities.

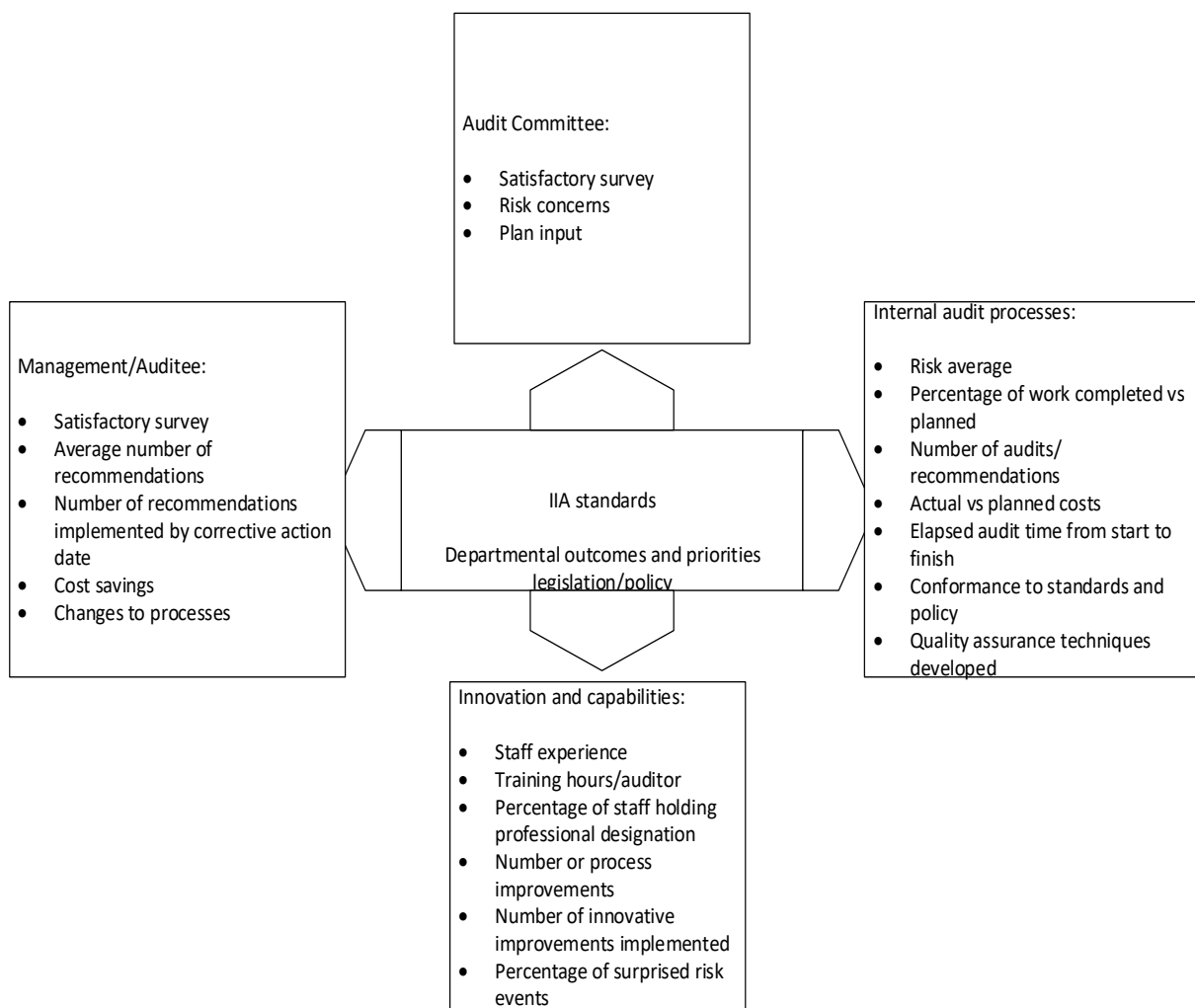


Figure 2.6: Balanced scorecard approach to measure internal audit effectiveness

Source: (Bota-Avram and Palfi 2009; IIA Netherlands 2016: 14)

2.3.4 Contingency Models

Contingency models emphasise that the effects of an independent variable (internal auditing) on a dependent variable (organisational performance) are not direct, but depend on other essential measurements or factors of the organisation's management such as its structure, environment, and strategy (Soetan, Owolabi and Asein 2018). This model states that a decision that works in one situation may not

work in another situation; this is because of the constraints in which businesses operate internally and externally. Kalkhouran (2015) comments that constraints within which businesses operate effects the decision making, business organisation, and leading styles employed in the organisation. The model further suggests that management of the organisation should take special notice of these constraints and have measures in place to minimise their negative effects. Christ and Burritt (2013), Kalkhouran (2015) and Otley (2016) point out various assumptions of the contingency model, namely; decision making must be open to different ideas, environment within which business operates must be taken into account when decisions are taken, and there must be systems in place to help with organisational performance. Internal auditing is one of those systems.

The effect of internal auditing on organisational performance may depend on various contingencies. These contingencies could be internal or external factors that impact the audit process. Lenz and Hahn (2015) and Soetan, Owolabi and Asein (2018) mention the client's industry standards and government rules and regulations as the constraints that an auditor needs to consider in their planning. Salehi (2016), Soetan, Owolabi and Asein (2018), Ali (2018) and Alkebsi and Aziz (2018) add that the effect of an internal audit depends on employees' competency level, available technology, deadlines, nature of the business, pertinent laws, and available audit workforce. Lenz and Hahn (2015) illustrated these constraints according to micro and macro factors as shown in Figure 2.7.

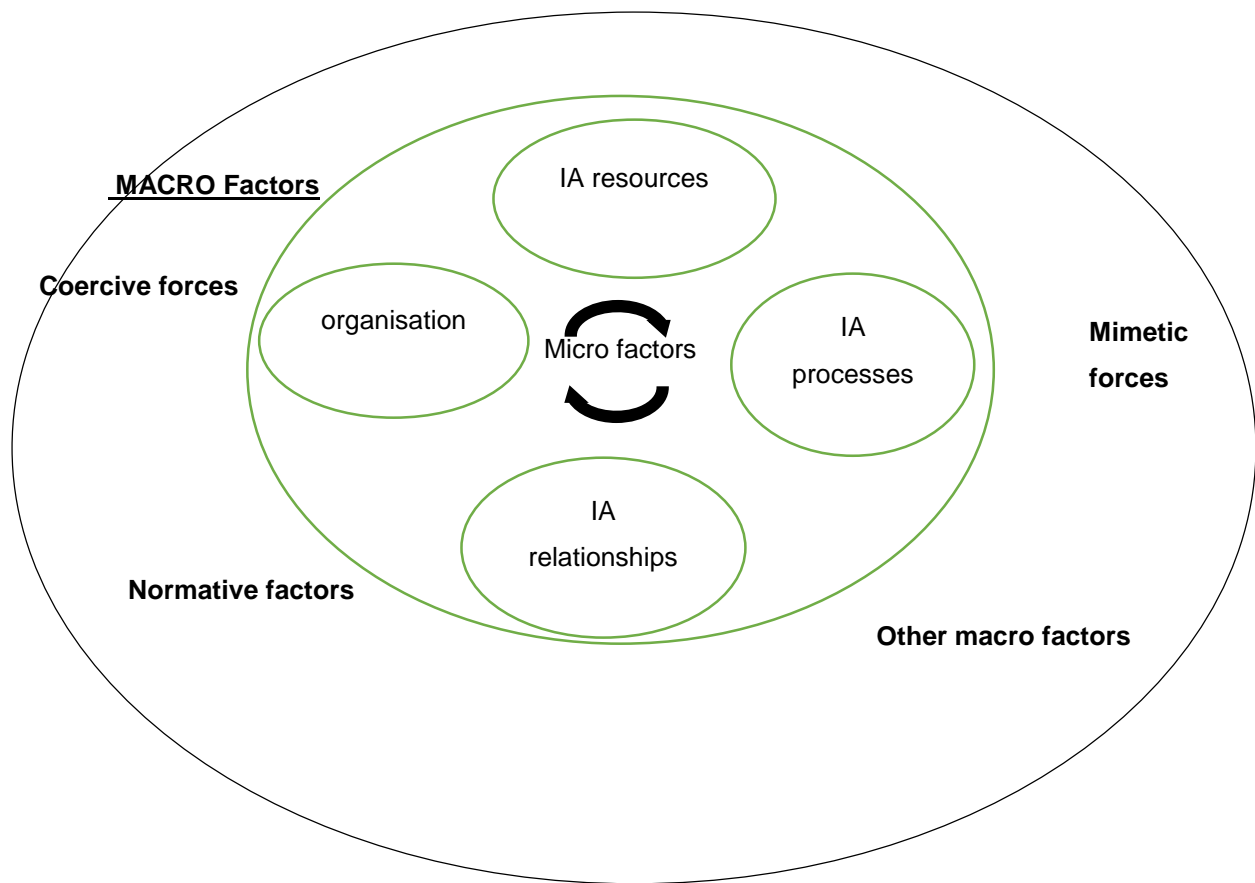


Figure 2.7: Contingent factors influencing internal audit effectiveness

Source: Lenz and Hahn (2015: 19)

The exploration of internal audit effectiveness factors (contingencies) is discussed in detail in 2.4 of this chapter.

2.3.5 Theoretical Review of Internal Audit Effectiveness

From a theoretical point of view, previous studies suggest using agency theory and institutional theory when evaluating internal audit effects.

2.3.5.1 Agency Theory

Agency relationship can be defined as the relationship between principals and their agents. Most commonly, this relationship sets the contract among business owners and their top management. According to this theory, management (agent) is required to perform some services for the benefit of the business owners (principal). However, an agency problem occurs when management performs services in their own interest and not in the interest of the owners (principals). In order to combat an agency problem, audit committees are given power to employ internal auditors and

nominate external auditors to help ensure that management performs duties in the best interest of the organisation so that the performance of the organisation is improved (Endaya and Hanefah 2013; Agoglia, Hatfield and Lambert 2015). Corten, Steijvers and Lybaert (2017) consider internal auditors as agents of the audit committee of the board of directors whose aim is to evaluate and provide assurance on the effectiveness of the work of senior management.

However, Endaya and Hanefah (2013) and Corten, Steijvers and Lybaert (2017) suggest that the motives of internal auditors may vary and turn against the interest of the audit committee. For instance, these motives include monetary rewards, private relationships, and gaining control of management to increase their salaries. Soetan, Owolabi and Asein (2018) argue that internal auditors as agents should be employed based on their professional level, which requires education and professional certifications, experience, and other competencies to perform their audit processes in a reasonable manner. Endaya and Hanefah (2013) consider agency theory important when studying internal auditing effectiveness.

2.3.5.2 Institutional Theory

According to Endaya and Hanefah (2013) and Lenz and Hahn (2015) institutional theory explains how organisational structures and practices are shaped as a result of internal and external forces such as laws, regulations and the requirement of the profession. Goddard *et al.* (2016) state that those external factors may include professional body requirements of employees of the organisation, government laws, and the guidelines of the organisational sector. Lenz, Sarens and Jeppesen (2018) view institutional theory as three forces when measuring internal audit effectiveness, namely: coercive, normative, and mimetic forces. Coercive forces relate to compliance with laws and regulations, for instance, the Sarbanes-Oxley Act has a strong influence on the development of internal auditing practices in the United States of America. Normative forces relate to compliance with a global professional practice as mandated by the association of internal auditors. Mimetic forces refer to the phenomenon that organisations model themselves and their operations by benchmarking to similar organisations.

2.3.6 Quality Assurance and Improvement Programme Framework

Standard 1300 of the international practices of internal auditing makes it clear that the “chief audit executive being the head of the internal audit department must develop and maintain a quality assurance and improvement programme (QAIP) that covers all aspects of internal audit activity” (Institute of Internal Auditors 2017b). Accordingly, the internal audit activity assessment must be completed both internally and externally as shown in Figure 2.8. The internal assessment should cover ongoing monitoring along with periodic self-assessment. Unlike internal assessment which covers oversight of internal audit work by the management of the organisation, external assessment involves an independent review of the services provided by the internal audit activity to measure its effects on the process. The standard concludes that the external assessment needs to be piloted once in every five years.

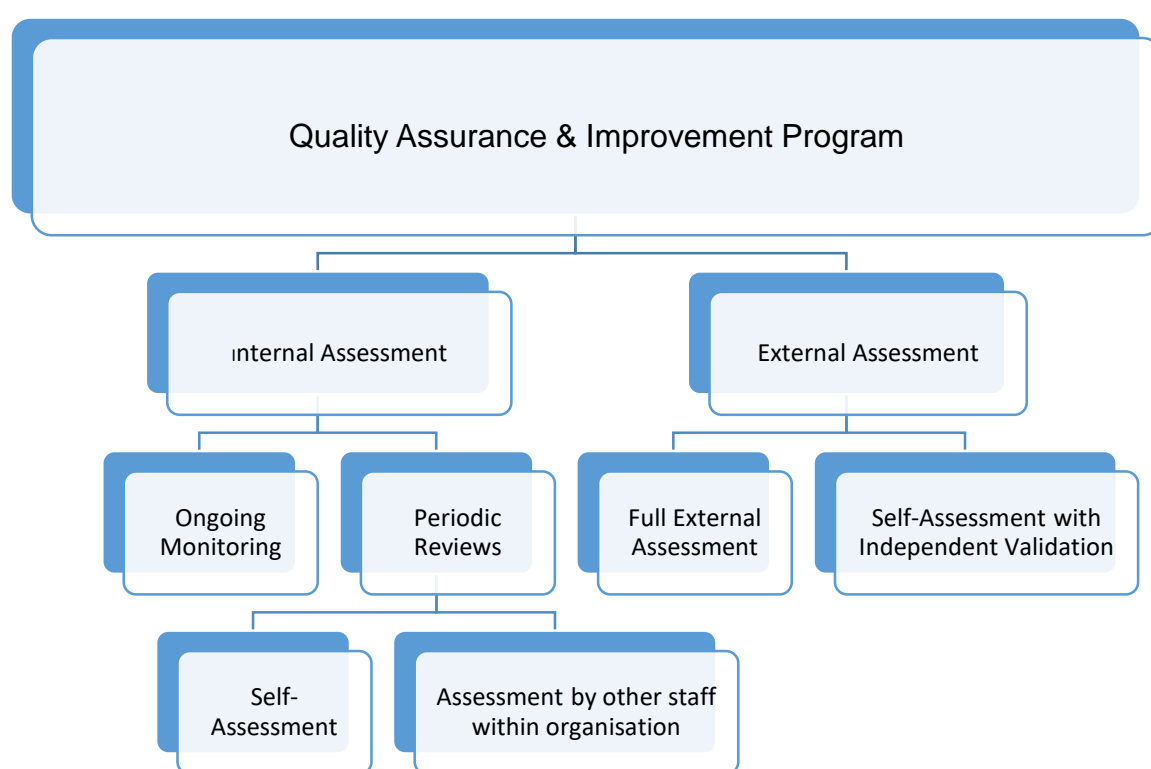


Figure 2.8: Quality assurance and improvement programme

Source: ADB's Office of the Auditor General (2018)

A quality assurance and improvement programme is explained as a measure of adherence with the mandatory guidance of internal auditing, namely: essential principles, internal auditing definition, code of ethics, and standards of an internal

audit department (Institute of Internal Auditors 2017b). This model helps the head of the internal department to determine if the internal audit practices are executed in compliance with the approved risk-based internal audit annual plan. However, this model has been challenged for concentrating on performance of procedures rather than considering the outcomes in terms of the expectations of relevant stakeholders such as the audited departments (Alzeban and Gwilliam 2014; Salehi 2016).

Table 2.2: Summary of models of internal audit effectiveness

Author/Study	Factors of Internal Audit Effectiveness Model	Method of Validation	Finding
Al-Matari, Al-Swidi and Fadzil (2014)	<ul style="list-style-type: none"> ➤ Chief audit executive qualification ➤ Internal audit departmental size ➤ Internal auditors' experience ➤ Competence 	Multiple regression analysis	A positive relationship exists between investigated factors of internal audit effectiveness and firm performance
Alzeban and Gwilliam (2014)	<ul style="list-style-type: none"> ➤ Competence ➤ Internal audit department's size ➤ Management support ➤ Internal audit function independency ➤ Relationship between internal and external auditors 	Multiple regression model	A strong positive relationship was found among five independent variables and internal audit effectiveness
Baharud-din, Shokiyah and Ibrahim (2014)	<ul style="list-style-type: none"> ➤ Auditors competence ➤ Independence/objectivity of internal auditors ➤ Management support 	Pearson's Correlation	The results show a significant positive relationship between factors analysed and internal audit effectiveness
Badara and Saidin (2014)	<ul style="list-style-type: none"> ➤ Effective audit committee ➤ Effective risk management ➤ Effective internal control framework ➤ Internal auditor's audit experience ➤ Coordination between internal and external auditors ➤ Effective audit committee 	Multiple regression model	All factors tested effected internal auditing positively and added value to the organisation
Hailemariam (2014)	<ul style="list-style-type: none"> ➤ Competence of internal auditors ➤ Management perception of internal auditor's value ➤ Management support ➤ Independent of internal function ➤ Approved internal audit charter 	Multiple regression analysis	Compared to all factors that were tested, a large influence of management support, competent internal audit staff, and the presence of approved internal audit charter was found
D'Onza <i>et al.</i> (2015)	<ul style="list-style-type: none"> ➤ Objectivity ➤ IAF's contribution to risk management 	Multiple regression analysis	The study found evidence that four variables are positively associated with adding value, namely

	<ul style="list-style-type: none"> ➤ Independence of internal audit ➤ IAF's contribution to internal controls ➤ Interaction with audit committee ➤ Compliance with IIA code of ethics 		independence, objectivity, IAF contribution to internal controls, and risk management
Dejnaronk <i>et al.</i> (2015)	<ul style="list-style-type: none"> ➤ Objectivity ➤ Management support ➤ Independence of internal audit function ➤ Risk-based internal audit plan ➤ Compliance with IIA standards ➤ Communication and reporting ➤ QAIP 	Regression model and structural equation model	The study found three new factors (compliance with the Institute of Internal Auditors standards, use of a risk-based audit plan, and presence of a quality assurance and improvement programme) as the factors that have high influence on internal audit effectiveness in Thailand
Drogalas, Karagiorgos and Arampatzis (2015)	<ul style="list-style-type: none"> ➤ Competence ➤ Internal audit quality ➤ Management support ➤ Independent internal audit function 	Regression analysis	The study reported independence of internal audit function as the most critical factor of internal audit effectiveness, while other factors had a positive relationship as well
Mustika (2015)	<ul style="list-style-type: none"> ➤ Competence ➤ Independence ➤ Auditee support ➤ Relationship between internal and external auditors 	Multiple regression analysis	The study found that internal audit effectiveness is influenced by all identified factors with a suggestion that more effectiveness could be achieved if these factors were strengthened
Ahmed (2016)	<ul style="list-style-type: none"> ➤ Competence of internal auditors ➤ Audit quality ➤ Management support for internal audit ➤ Independence of internal audit ➤ Approved internal audit charter 	Multiple regression analysis	Researchers found that the five independent variables identified make a significant 58.7% of the contributions to internal audit effectiveness.
Dellai and Omri (2016)	<ul style="list-style-type: none"> ➤ Independent internal audit function ➤ Objective internal auditors ➤ Management support ➤ Use of IAF as a management training ground ➤ Organisational sector of operation 	Multiple regression analysis	A strong positive correlation between internal audit effectiveness and all five tested variables
Salehi (2016)	<ul style="list-style-type: none"> ➤ Internal auditors' competence ➤ Size of IAF ➤ Management support ➤ IAF Independence ➤ Outsourced internal audit ➤ Communications between internal and external auditors. 	Multivariate regression model	There is a strong relationship between management support and effectiveness of internal auditing. Other factors were found moderately influential on internal audit effectiveness

Rudhani, Vokshi and Hashani (2017)	<ul style="list-style-type: none"> ➤ Competence ➤ Internal auditor's quality ➤ Management support ➤ Independence of internal audit 	Multiple regression analysis	There is a positive correlation between the examined factors and internal audit effectiveness, with quality of internal audits performed described as a fundamental factor underlying internal audit effectiveness
Shamki and Alhajri (2017)	<ul style="list-style-type: none"> ➤ Scope of internal auditors ➤ Experience possessed by internal auditors ➤ Response of senior management 	Multiple regression analysis	Differences in managers and employees' responses were noted in relation to internal audit scope, auditors' experience, management response and internal audit effectiveness. Employees showed significant correlation while managers revealed a insignificant correlation with factors tested.
Ali (2018)	<ul style="list-style-type: none"> ➤ Competence of internal auditors ➤ Size of internal audit function ➤ Management support for internal audit ➤ Independence of internal audit 	Multiple regression model	All the factors of internal audit effectiveness that were tested had a strong relationship with organisational performance
Erasmus and Coetzee (2018)	<ul style="list-style-type: none"> ➤ IAF influence sphere ➤ IAF standing ➤ IAF services and roles performed ➤ IAF size ➤ Internal auditor competence ➤ Consulting on risks ➤ IAF understand operations ➤ IAF functional reporting structure ➤ Competent leadership ➤ No scope limitation on IAF activities 	Multiple regression analysis	A positive correlation was found between the identified factors and internal auditing effectiveness, with a high level of significance allocated to senior management and audit committee support

Table 2.2 offers a summary of studies that have attempted to evaluate the effectiveness of internal auditing. The table provides the factors of internal audit effectiveness, methods of validation, and findings of the corresponding study. This table is significant because these studies listed provide a good theoretical background for the current research.

2.4 Internal Audit Effectiveness Factors

The primary purpose of this research is to evaluate the effect of internal audit practices on the performance of a higher education institution. However, the literature review shows that internal audit effectiveness is usually dependent on certain factors.

Different causal factors have been identified from the literature for evaluating internal audit effectiveness (Mustika 2015; Ahmed 2016; Dellai and Omri 2016; Eulerich, Henseler and Köhler 2017; Rudhani, Vokshi and Hashani 2017; Shamki and Alhajri 2017; Ali 2018). This section of the study reviews the different factors that contribute to internal audit effectiveness and organisational performance.

2.4.1 Independence and Objectivity

The term 'independence' has been stressed for external auditors in the past since they come from outside the organisation being audited. However, in recent years, professional organisations and standard regulators have emphasised the importance of the internal auditor's independence as well (Al-Akra, Abdel-Qader and Billah 2016). The Institute of Internal Auditors' standards world-wide (ISPPA) necessitate that the internal audit department be independent, and that internal auditors be objective while performing their internal audit activities. Standard 1100 further recommends that in order to ensure an appropriate level of independence and objectivity of the internal auditors, the head of the internal audit department must report administratively to senior management and functionally to the audit committee of the board of directors, and be appointed and removed by the audit committee and not executive management. They should have unrestricted access to records, personnel and departments, avoid any conflict of interest, and not perform non-audit activities (Coetzee *et al.* 2017; Institute of Internal Auditors 2017a). Furthermore, Standard 1111 emphasises that the chief audit executive's access to the board of directors and senior management be unlimited to allow for full independence of the department (Coetzee *et al.* 2017).

Recent studies that have examined this factor reveal that the higher the level of the auditor's independence, the higher the level of internal audit effectiveness. Prior research shows that a lack of independence in auditing is a critical obstacle to satisfactory performance of an internal audit department (Alzeban and Gwilliam 2014; Salehi 2016). Drogalas, Karagiorgos and Arampatzis (2015) indicate that independence of internal audit is the foundation for effective internal audit processes. After studying the four factors of internal audit quality, independence of internal audit function, competence of internal auditors, and support of management, they concluded that independence of the internal audit function is the most crucial factor

that contributes to the effectiveness of internal auditing. Dellai and Omri (2016), Coetzee and Erasmus (2017) and Ali (2018) support these conclusions. However, despite the strong correlation shown by the above-mentioned studies, Alzeban and Gwilliam (2014) compared the significance of independence of internal audit function to other factors such as competence of internal audit department, size of internal audit department, relationship between internal and external auditors, and management support, and concluded that the significance of this independence is relatively low.

It is interesting to note that Salehi (2016) emphasises that the independence of internal auditors is also related to the support that management awards to the internal audit. Management support for internal auditors is useful for the independence of auditors, because this support emanates from the audit committee and not the executive management. This is because the executive management is part of daily activities of the organisation, while the audit committee involves independent non-executive directors.

2.4.2 Management Support

Support of management for internal auditing is vital for the recognition and appreciation of the internal audit practices within the organisation. This factor is crucial to the operation of internal audit because other factors depend on the support from management (Ahmed 2016). International standards of internal auditing state that internal auditors have to be supported by the senior management and board of directors to effectively execute their duties and fulfil their responsibilities. “The head of internal audit department should encourage senior management involvement in the internal audit plan and provide them with a detailed plan of internal audit activities indicating required resources, including significant interim changes, so that senior management can review and approve it for further progress with other deciding authorities in the company” (Sobel *et al.* 2017). According to Salehi (2016), the support of management for the internal audit includes providing enough budget for the acquisition of competent human capital and other resources needed for the daily operation of the function. Likewise, Alzeban and Gwilliam (2014) reiterate that “having support of management enables internal auditors to access more resources for undertaking their tasks and meeting their responsibilities, an internal audit department can hire competent employees, train them, and finally improve their

capabilities and efficiency". Salehi (2016) observes that a tone of acceptance and appreciation of internal auditing practices sends a crucial message to the entire organisation about the importance of internal auditors. This support enables the internal audit function to complete its activities and responsibilities. Ahmad *et al.* (2009) and Dellai and Omri (2016) associate this kind of support from seniors as the key that influences the implementation of recommendations made by internal auditors. This means if the seniors believe in the internal auditors, everyone in the organisation will give respect and credit to the internal audit function and enable the exercise of its responsibilities without limitations. ISPPA emphasises the importance of communication between internal auditor and senior management, and how administration supports the internal audit.

Almost all studies of internal audit effectiveness have considered management support for effective internal audit as the most significant factor. The study of Salehi (2016) identifies the need for senior management support for the effective functioning of the internal audit function. Lenz, Sarens and Hoos (2017) agree that interaction between the chief audit executive and senior management is a key determinant of internal audit effectiveness. Alzeban and Gwilliam (2014) gathered data from both internal auditors and management in the Saudi Arabian public sector; both groups of respondents agreed that support of management for internal auditing is the most crucial factor for effective internal audit practices.

The success of the organisation relies on effective internal control systems (Harp and Barnes 2018). Cheng, Goh and Kim (2018) suggest that all organisations should improve the effectiveness of their internal control systems and internal audit function to ensure good corporate governance. The establishment of effective internal control systems helps to improve operational efficiency and provides assurance that organisational objectives will be achieved (Cheng, Goh and Kim 2018). Internal auditors evaluate the adequacy and operational effectiveness of internal controls, risk management, and governance processes (Sobel *et al.* 2017; Mortell and Prabhakaran 2018). Mortell and Prabhakaran (2018) propose that internal auditors should provide a professional judgement and make recommendations for better organisational controls in order to mitigate risk. In return, management is encouraged to respond to the recommendations made as this will show appreciation and the value awarded to the internal audit function in the organisation, and reduce the obstacles that may hinder the activities of internal auditors

2.4.3 Competence

Almost every study of effectiveness of internal auditing highlighted the competence of internal auditors as a factor in their evaluation of internal audit effectiveness. The international standards of internal auditing (Standard 1210) point out the necessity of internal audit staff possessing knowledge, skill, and other competencies in order to conduct their audit engagements. According to international standards, competence is the combination of motives, traits and self-concepts, knowledge, and skills. Wu *et al.* (2017) suggest that motives, traits and self-concepts are different from knowledge and skills, in that motives, traits and self-concepts are essential features of character which are not easy to acquire through training. By contrast, knowledge and skills can be revealed and developed through training. Alzeban and Gwilliam (2014) associate competence with the level of education, working experience in the field of internal auditing, professional qualifications and training, all of which assist auditors to add value and improve organisational performance. The general experience of internal auditors relates to an auditor's years of experience, skills, knowledge, training and expertise that can be applied to any auditee (Shamki and Alhajri 2017). This is consistent with internal auditing Standard 1210, which states that "internal auditors must possess high skills, knowledge and other competencies to perform their responsibilities" (Institute of Internal Auditors 2017a). Furthermore, Badara and Saidin (2013) associate auditing experience with the skills and knowledge that an auditor develops with long practice in the internal auditing field. Since effectiveness is a key issue for the internal audit stakeholders, namely internal auditors, audit committees, boards of directors and senior management. Badara and Saidin (2014) indicate that management usually gives more concern to recommendations from experienced auditors compared to inexperienced auditors. This confirms that experience of internal auditors is essential to enable an auditor to provide good audit outcomes and good recommendations to the auditee.

Previous studies of internal audit effectiveness such as those of Ussahawanitchakit (2012), Wang *et al.* (2012), Badara and Saidin (2014) and Shamki and Alhajri (2017) did not examine the influence of the auditor's experience as a stand-alone factor in relation to internal audit effectiveness. Nevertheless, Ussahawanitchakit (2012) recommends that future research should focus on the

experience of internal auditors in relation to the effectiveness of internal auditing. Badara and Saidin (2014) and Shamki and Alhajri (2017) did explore the experience of auditors in relation to internal audit effectiveness and found that the experience of auditors is positively associated with the effectiveness of internal auditing. Furthermore, Shamki and Alhajri (2017) considered the experience of internal auditors as significant because they identified that managers are interested in the organisational performance and audit findings that are reported by experienced internal auditors.

On the other hand, Lenz, Sarens and Hoos (2017) argued that internal audit staff competence could depend on the profile of the chief audit executive (CAE) as the leader in the internal audit function. In this case, the profile of the CAE includes their educational qualification, professional qualification as well as the experience possessed by the chief audit executive in the field of auditing. For internal auditors to effectively carry out their responsibilities, the IIA encourages them to obtain professional qualifications issued by the association of internal auditors and other recognised organisations to demonstrate their know-how (Institute of Internal Auditors 2016a). Examples of qualifications offered by IIA include: "Certified Internal Auditor (CIA), Certified Government Auditing Professional (CGAP), Certified Financial Services Auditor (CFSA), Certification in Control Self-Assessment (CCSA), Certification in Risk Management Assurance (CRMA), and Qualification in Internal Audit Leadership (QIAL)" (Institute of Internal Auditors Zambia 2018). Al-Matari, Al-Swidi and Fadzil (2014) corroborate that qualified chief audit executives help enhance firm performance as they possess expertise that is well recognised to run the internal audit function and achieve their work with good quality. Furthermore, highly qualified CAEs are more likely to deal with issues of the internal audit function internally instead of outsourcing this function incurs extra fees (Lenz, Sarens and D'Silva 2014). Although there are very few studies that have focused on the chief audit executive's profile and internal audit effectiveness, the following studies have found a positive correlation between these two variables: Al-Matari, Al-Swidi and Fadzil (2014); Lenz, Sarens and D'Silva (2014); Coetzee and Erasmus (2017).

Prior studies claim that the competence of an internal auditor is a vital factor for internal auditor effectiveness (Baharud-din, Shokiyah and Ibrahim 2014; Hailemariam 2014; Abuazza *et al.* 2015; Salehi 2016; Ali 2018). Wu *et al.* (2017) note that the competence of internal auditors positively impacts the effectiveness of internal

auditing, based on their problem-solving skills and their ability to use auditing software. Thus, the performance of internal auditors is enhanced through computer skills and the ability to solve problems. Moreover, the results of the study by Salehi (2016) reveal that competence of the internal auditors relies on management support for internal audit to be able to hire experienced and educated staff to perform the internal audit activities.

2.4.4 Relationship Between Internal and External Auditors

Both internal and external auditing standards stress the importance of coordination between internal and external auditors. Internal auditing standards (Standard 2050) stress the importance of the professional relationship between internal and external auditors. This standard lays out the benefits of coordination between two parties as follows: coordination of results for the proper coverage of audit work, minimising duplication of effort and thus reducing external audit costs. External auditing standards (ISA 315) indicate that effective communication between internal and external auditors can create an atmosphere for external auditors in which they are being mutually informed about key matters that have an impact on their work.

Alzeban and Gwilliam (2014) explain that the coordination between internal and external auditors benefits both parties and involves cooperative planning and sharing of information, opinions, and reports, in order to facilitate top quality audits and avoid the subsequent duplication of audit work. Through coordination the internal auditors can achieve their objectives and provide better service to the organisation, and the external auditors can provide excellent quality audit opinion using information provided by internal auditors (Pike *et al.* 2016).

Academic studies prove that coordination between the two parties boosts the efficiency, economy and effectiveness of their processes including a reduction in external audit hours, external audit effort, audit delay and external audit fees (Bame-Aldred *et al.* 2013; Pizzini, Lin and Ziegenfuss 2015). Such coordination allows management to deliver better public services to the public sector (Badara and Saidin 2014). Wang and Fargher (2017) claim that the effectiveness of internal auditing is enhanced through coordination with external auditors since it allows internal auditors to access the audit techniques and terminology of the external auditors and apply these within the scope of internal auditing. They further state that coordination sets

as the operative mechanism to reduce the effect of poor tone at the top on measured fraud risk by internal auditors. Wang and Fargher (2017) conclude that the nonexistence of coordination between auditors results in a high risk of fraud, and they suggest that internal auditors should make use of this coordination as a means of reducing financial fraud risk and enhancing the reliability of financial statements.

2.4.5 Outsourcing Internal Audit

The independence of internal auditors has always been a problem in the eyes of some users since the scope of internal auditors has been expanded to consulting services and they are the employees of the organisation (Yasseen 2011). Both IIA global and auditees have made important suggestions regarding this matter. The IIA global standards suggest that internal audit activities be maintained in-house and strengthen their reporting lines to provide effective audit practices. For consulting activities, Standard 1130.A1 requires that internal auditors should not provide audit services for the department in which the auditor worked in the previous year (Institute of Internal Auditors 2017a). In addition, auditees can decide on the outsourcing of internal audit activities to deal with the matter of independence. For this study, outsourcing is used to refer to a process whereby another firm or party performs activities that could have been carried out or are usually performed in-house.

An internal audit department can be maintained inside the organisation (in-house), outsourced or co-sourced. Internal audit outsourcing generates various advantages and disadvantages; the most common advantage involves creation of an internal audit team with specialised audit skills and knowledge (Dellai and Omri 2016). However, outsourcing increases the objectivity of internal auditors, and eliminates the cost to the organisation of training and recruitment. Furthermore, Davidson, Desai and Gerard (2013) suggest that outsourced internal auditors are more competent, and as a result, external auditors prefer to rely on their work over that of in-house internal auditors. However, Dellai and Omri (2016) also found that outsourced auditors do not have the necessary knowledge of the environment and the culture in which the business operates, and as a result, outsourced internal auditors are more likely to not have access to the relevant information to help the organisation mitigate fraud risk.

Mihret and Grant (2017) reveal that in-house auditors have intimate knowledge of the organisation. Likewise, Soh and Martinov-Bennie (2011) and Petraşcu and Tieanu (2014) state that the in-house audit function is better placed to report fraud indicators before they occur, because this function is an integral part of the organisation. In the study by Soh and Martinov-Bennie (2011) the senior manager was quoted as saying: “I came to the view at some stage that external people really did not know what was going on, that you really had to have somebody there to know what was going on and who was covering up and where this could be improved”. Having considered the literature, it is hard to tell which type of internal audit function is more effective, but Plant (2014) found that the majority of the respondents in her study preferred an in-house audit function compared to an outsourced audit function due to the commitment to governance processes. That study was conducted to explore practices of internal auditing in the South African public sector; the data was collected from both auditors (CAEs) and auditees from the national government departments in South Africa.

2.4.6 Internal Audit Quality

Internal auditors are increasingly expected to cover a variety of responsibilities including providing assurance and assisting management with risk management processes. However, quality is of paramount importance in executing those responsibilities. Zaman and Sarens (2013), and Eulerich, Henseler and Köhler (2017) associate the quality of the internal audit department with its interaction with other governance mechanisms such as audit committee, board of directors, and management. Mat Zain, Zaman and Mohamed (2015) suggest that such interaction with other governance mechanisms can result in the internal auditors performing their work efficiently, thus reducing external audit fees since a certain amount of the work will already have been covered by internal auditors.

Recent academic studies that have examined internal audit quality as an independent variable, along with internal audit effectiveness as a dependent variable, found that there is a positive relationship between the two (Drogalas, Karagiorgos and Arampatzis 2015; Rudhani, Vokshi and Hashani 2017). Pizzini, Lin and Ziegenfuss (2015) are of the view that internal audit quality is principally driven by the proficiency of internal audit staff. They believe that competent internal audit staff

improve the quality of audit work by correctly justifying internal audit findings, issuing accurate audit reports, improving their communication with external auditors and thus achieving internal audit objectives. Oussii and Boulila Taktak (2018) indicate that internal audit quality positively contributes to internal quality control, which supports Pizzini, Lin and Ziegenfuss (2015) who state that if the internal audit function is effective it should enhance the financial reporting controls. These authors found that the quality of internal audit reduces the delay of external audit work, and thus enhances the trustworthiness of financial statements .

2.4.7 Use of Internal Audit Function as Management Training Ground

The internal audit function can be considered as a management training ground in two ways. Firstly, the internal audit function can be used as training ground when new employees are hired by the firm and are placed into the internal audit department with the expectation of management positions in future. Secondly, existing employees can be cycled to the internal auditing department with aim of giving them senior management positions in future (Messier *et al.* 2011; Carcello *et al.* 2018). Research indicates that the use of the internal audit function as a management training ground has advantages and disadvantages. The relevant research points out that the use of internal audit functions can adversely impact financial reporting quality, external audit fees, objectivity of internal auditors and internal audit efficiency (Messier *et al.* 2011; Rose, Rose and Norman 2013). In a management training ground setting, internal auditors may not be working in order to be retained in the audit function which can negative impact internal audit skills (retention of experienced internal auditors) and quality (Hoos *et al.* 2018). Using archival data, Messier *et al.* (2011) concluded that external auditors charge higher fees to organisations that use the internal audit function as a management training ground. Furthermore, they performed an experiment to find the reason why the fees are higher; they observed that external auditors perceived internal auditors to be less objective when hired in an internal audit function which is used as a management training ground.

Some authors argue that using the internal audit function positively impacts the operations of the business. Hoos *et al.* (2018) suggest that using the internal audit function as a management training ground provides for well-trained senior managers exposed to all areas of the organisation. Carcello *et al.* (2018) found that the chief

audit executives perceive that senior management accept and implement the recommendations of the audit function used as management training ground rather than the recommendations of a non-management training ground. In addition (Dellai and Omri 2016) found that using the internal audit function as a management training ground resulted in increased effectiveness of the internal audit function. In fact, spending time in the internal audit function results in managers understanding the internal controls and therefore performing their duties better.

2.4.8 Internal Audit Services and Roles

The roles and services offered by an internal audit to the organisation differs significantly to those of management. Internal audit is a control mechanism placed in the organisation to evaluate and test the effectiveness of existing controls placed by management in the organisation (Soh and Martinov-Bennie 2018). Management of the organisation designs, implements and monitors internal controls in order to mitigate risk within the organisation. Internal auditors then evaluate if the controls designed and implemented by management are adequate to mitigate risk, and if those controls are operating effectively so as to achieve the intended goals (Engelbrecht, Yasseen and Omarjee 2018).

Internal audit function offers two types of services in an organisation, namely, assurance and consulting services. The Institute of Internal Auditors (IIA) (2013) defines assurance services as “an objective examination of evidence for the purpose of providing independent assessment on governance, risk management, and control processes to the organisation”. Consulting is defined as follows: “advisory and client-related service activities, the nature and scope of which are agreed with the client, are intended to add value and improve organisation’s governance, risk management and internal control processes without the internal auditor assuming management responsibility” (Institute of Internal Auditors 2013; Soh and Martinov-Bennie 2015).

The services and roles of the internal audit function are determined in the framework of international professional practices. The Institute of Internal Auditors (2017b) suggest that the key roles of the internal audit function should be compliance, assurance and consulting within the scope of governance, risk management and internal controls. In addition, the ISPPA Standard 2100 (Nature of work) emphasises that the “internal audit function must evaluate and contribute to the improvement of

organisation's governance, risk management and control processes using a systematic, disciplined, and risk-based audit approach". Furthermore, Standards 2110 (governance), 2120 (risk management), and 2130 (internal controls) were considered in addressing the three roles of internal auditing.

Effective risk management is one of the most significant aspects of good organisational governance (Kong *et al.* 2018). Enterprise risk management has received considerable global attention over the years due to the failure in 2001 of the well-known company Enron. It follows that higher public education institutions need to prioritise the issue of risk management to assure the achievement of the objectives of the institution. Mortell and Prabhakaran (2018) note that effective risk management contributes to the achievement of organisational objectives. Badara and Saidin (2014) define risk management as the process of identifying risk which can negatively impact the achievement of organisational goals and internal audit effectiveness.

There is limited research that examines the relationship between risk management and internal audit effectiveness. An example of such research is that of Badara and Saidin (2014). Previous studies have focused on the role of internal auditors in risk management (Vasile, Croitoru and Mitran 2012; Mihret and Grant 2017; Mortell and Prabhakaran 2018). Despite the limited research on risk management and internal audit effectiveness, studies such as those by Vasile, Croitoru and Mitran (2012) and Badara and Saidin (2014) show that enterprise risk management plays a crucial role in the achievement of internal audit objectives. For instance, Badara and Saidin (2014) conclude that enterprise risk management impacts internal audit activities positively in the organisation. Similarly, Vasile, Croitoru and Mitran (2012) state that a well-structured risk management process can result in the effectiveness of internal audit planning and help management to achieve their objectives.

Internal control Standard 2130 suggests that the internal audit function must assess the sufficiency and operational effectiveness of controls in responding to risks within the organisational governance, processes, and information systems concerning the accomplishment of strategic objectives of the organisation. Coetzee *et al.* (2017) define an internal control system as the process designed by management of the organisation to safeguard its assets, to ensure reliability of both financial and non-financial information, as well as ensuring compliance with policies and procedures established for achievement of organisational objectives. There is a very little

research on effective internal control systems and internal audit effectiveness. Some of the studies on internal control systems did not examine the relationship internal control system has with internal audit effectiveness (Cheng, Goh and Kim 2018; Harp and Barnes 2018). However, the study by Badara and Saidin (2014) emphasises the need for future research on internal control systems and internal audit effectiveness. They conclude that effective internal control system has a significant positive impact on the effectiveness of internal auditing.

Previous research confirms the positive correlation between the internal audit function's services and roles and the effectiveness of internal auditing for the organisation (Lenz, Sarens and D'Silva 2014; D'Onza *et al.* 2015; Lenz and Hahn 2015; Coetzee and Erasmus 2017; Erasmus and Coetzee 2018). According to D'Onza *et al.* (2015), effectiveness of internal auditing expands to the organisation when the internal audit function contributes to the effectiveness of risk management, internal controls and governance. It is interesting to note that Erasmus and Coetzee (2018) agree on the fact that an internal audit function that provides both assurance and consulting services on organisational internal control systems, governance issues, and risk management processes is the key driver for internal audit effectiveness. However, researchers point out that for this positive correlation to be possible, there should be no scope limitation placed on the internal audit practices.

2.4.9 Internal Audit Scope

Internal audit scope of work is another important factor influencing internal audit effectiveness (Abuazza *et al.* 2015). The internal audit scope provides for areas that need to be included and those that need to be excluded as part of the audit engagement under review (Sobel *et al.* 2017). For example, the scope statement may specify which sub-processes to include if the organisation has many larger processes, the boundaries of the process, the components and the time frame. As part of its planning process, the internal audit function needs to decide on the assurance engagement work in order to achieve their established objectives. Standard 1110A1 strongly suggests that the "internal audit function must be free from determining scope of internal auditing, performing their work and communicating result to management". Abuazza *et al.* (2015) agree that the internal audit scope must include both operational and overall processes of the organisation; in that way the entire audit

universe will be included. However, it must be the choice of the internal audit function to decide on the areas to include in their work.

Research conducted in the past reveals that the scope of internal auditors' work has increased over the years. Nowadays the amount of internal audit work has been extended to risk assessment, governance processes, consultancy, serving many business units (other than finance alone) and the organisation as a whole, forward-looking at operations, fraud prevention, and risk based internal audit planning (Ali and Owais 2013; Al-Akra, Abdel-Qader and Billah 2016; Cox 2017). Abuazza (2012) and Abuazza *et al.* (2015) found that the main elements of the internal audit scope include the following:

- i. Evaluate financial and non-financial processes
- ii. Evaluate current systems of the organisation
- iii. Amend and improve of novel systems
- iv. Assess the internal control framework
- v. Provide assurance regarding fraud risks
- vi. Authenticate the correctness of numerals in financial records
- vii. Provide assurance on compliance with pre-approved policies and procedures
- viii. Assess the efficiency of business results
- ix. Help management with the effectiveness of the risk management process.

2.4.10 Effective Audit Committee

The committee of auditors is the foundation of effective governance in many organisations (Cox 2017). The success of the audit committee is associated with its expanded scope from financial reporting to key areas that encourage organisational performance, such as risk management, compliance, and the effectiveness of internal controls over operation (Institute of Internal Auditors 2016b) . Moreover, the literature reveals that the transformed scope of the audit committee is only possible with help of internal auditors. Given its critical position in the organisation, internal audit alerts the audit committee by providing insight into the risk facing the organisation (Institute of Internal Auditors 2016b). Researchers such as Owolabi and Dada (2011), Badara and Saidin (2014) and the Institute of Internal Auditors (2016b) argue that the effective functioning of the internal audit function relies on the effectiveness of the audit

committee and that of audit committee relies on effective internal audit function. Rittenberg (2016) further emphasises that the two parties should have a strong working relationship so that the relationship will assist internal audit to improve and protect organisational value from risk, by providing risk-based assurance, advice and insight to the organisation. The Institute of Internal Auditors (2016b) suggests a mutual relationship between the two parties is effective as shown in Figure 2.9.

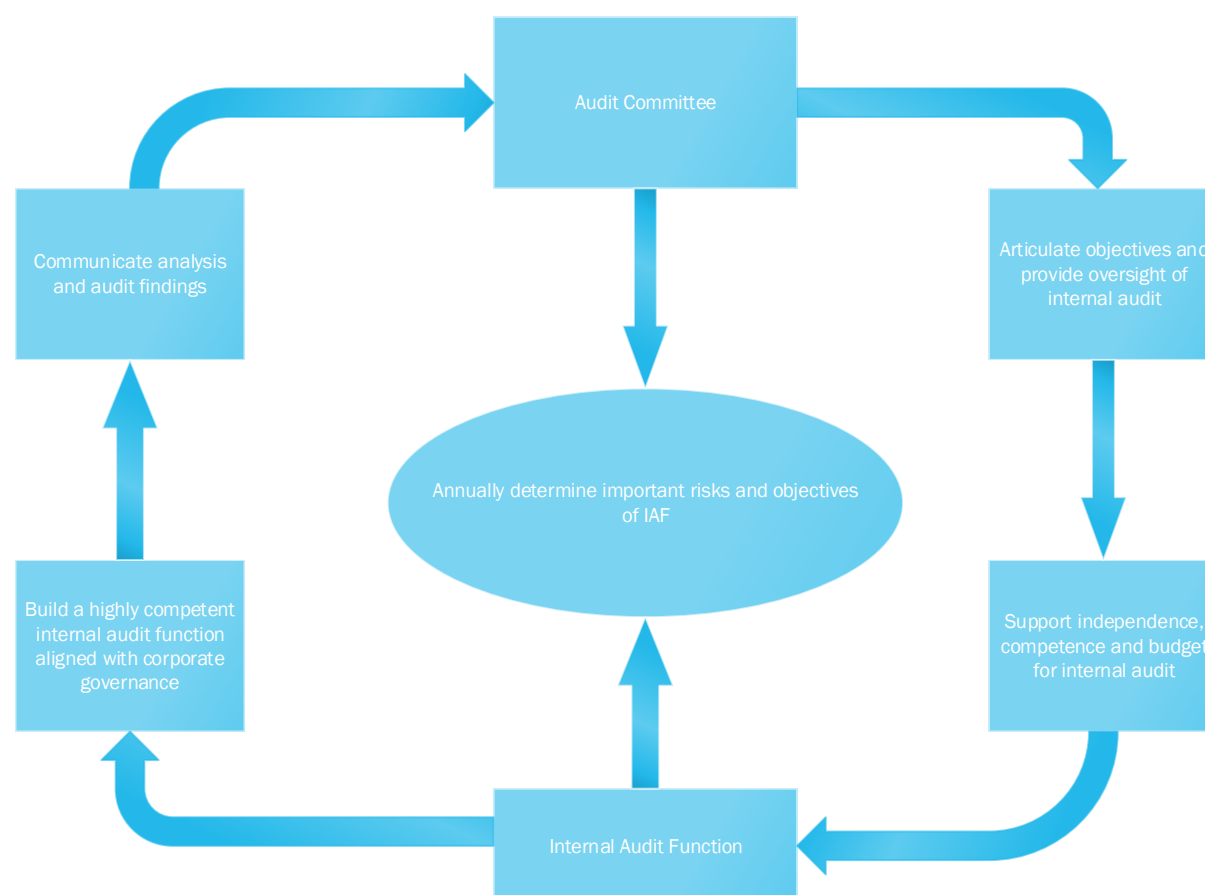


Figure 2.9: Audit committee and internal audit function relationship

Source: Institute of Internal Auditors (2016b)

Figure 2.9 highlights the interdependence by the audit committee and the internal audit function. The circular process begins with the audit committee by ensuring that IAF gets support from management, in return, with the support obtained an effective IAF is built and audits are carried out and findings can be communicated to the audit committee. An effective audit committee should review the internal audit planning, execution, as well as the actions based on the internal audit recommendations (Abdullah, Ismail and Smith 2018).

Due to its relevance in the area of corporate success, the establishment of an audit committee has become mandatory in many countries (Badara and Saidin 2014). In South Africa, the Companies Act 71 of 2008 creates an obligation for public companies to appoint not more than three independent non-executive directors within the committee of auditors. This is a statutory requirement for any public company and all state-owned companies (Republic of South Africa 2009). The King Report (IV) adds to the Companies Act 71 of 2008 by recommending best practices for an effective audit committee (Ramalho 2016). An effective audit committee is the one with its members courageously independent, professionally sceptical, and intellectually curious, deeply experienced, approachable relationship builders and risk-centric strategists (Institute of Internal Auditors 2016b). The effectiveness of the audit committee needs to be evaluated in order to strengthen the internal audit and external audit functions and the overall governance of the organisation (Quigley 2012). Hence, audit functions that receive the full attention of the audit committee are more likely to achieve their objectives and thereby help the organisation achieve its objectives (Badara and Saidin 2013) .

It is interesting to note that the study of Alhajri (2017) finds that audit committee effectiveness influences the size of the internal audit department. Audit committees play an important role in ensuring the department is financially well-resourced in order to hire the appropriate number of internal auditors. Academic studies show that enough internal audit staff is positively associated with internal audit effectiveness (Alzeban and Gwilliam 2014; Salehi 2016). Further attention has been given to the size of the internal audit department as one of the factors that contribute to internal audit department after the report by Arena and Azzone (2009) who found that “the failure of internal audit performance was the result of the few number of internal auditors in the Malaysian governmental organisations”.

Recent studies have focused on the factors that need to be present to ensure the appropriate size of the internal audit department. Anderson *et al.* (2012) examined factors influencing internal audit department size in the decade after SOX was established. The study reports that better audit committees, better organisational experience of chief audit executives, organisation size, and the use of audit technologies are some of the variables influencing the size of internal audit departments. Anderson *et al.* 2012 and Alhajri 2017) indicated that an audit

committee is the key factor influencing the size of an internal audit department which subsequently influences internal audit effectiveness (Salehi 2016).

2.4.11 Internal Audit Charter

The Institute of Internal Auditors define an internal audit charter as “a formal written document that defines the internal audit activity's purpose, authority, and responsibility. The charter establishes the internal audit activity's position within the organisation, including the nature of the chief audit executive's functional reporting relationship with the board; authorises access to records, personnel, and physical properties relevant to the performance of engagements; and defines the scope of internal audit activities” (Institute of Internal Auditors 2016a). Additionally, the audit charter usually includes the responsibilities of internal auditors in broad terms, their standards to follow, as well as the relationship internal auditors have with the audit committee.

According to the literature reviewed by Hailemariam (2014), many authors have found that the existence of an internal audit charter contributes significantly to the best practice of internal auditors. In his study, Hailemariam (2014) concluded that a well enrolled and approved audit charter safeguards the independent status of the internal audit and is influential in senior management implementing the recommendations, therefore enhancing the effectiveness of internal audit as a whole. Further, “the internal audit standards point out that the approval of internal audit charter should be approved by the board of directors, particularly the audit committee” (Institute of Internal Auditors 2016a).

2.4.12 Quality Assurance and Improvement Programme

Both internal auditors and organisations that provide internal audit services are required to perform their services with care, diligence, and skill prescribed in the code of practice by the institution of professional internal auditors and other authoritative bodies (Institute of Internal Auditors 2017b). Practices of internal auditing are driven by IIA's framework of global standards. The standards expect the auditor to be responsible for compliance with matters associated to the requirements of individuals that provide internal audits and professional responsibilities as issued by the association of internal auditors (Institute of Internal Auditors 2016a). Furthermore,

chief audit executives are additionally accountable for the overall conformance of their audit departments with the Standards . Dejnaronk *et al.* (2015) empirically proved that compliance with ISPPIA standards increases the effectiveness of internal audit practice. Furthermore, Burnaby and Hass (2011) and Dejnaronk *et al.* (2015) state that compliance with ISPPIA provides an increased degree of comfort for an organisation that there are adequate internal controls, risk management and corporate governance processes.

One of the aims of the IIA's international standards for the professional practice of internal audit is to establish the basis for evaluation of internal audit performance. of the importance of evaluating internal audit performance is stated in Standard 1300 (quality assurance and improvement programme, QAIP) . The standard suggests that the “chief audit executive must develop and maintain quality assurance programmes that cover all aspects of internal audit function” (Institute of Internal Auditors 2017a). In designing QAIP, it should allow departments that provide internal audit to measure the extent to which they comply with approved IIA standards and application of the code of ethics by individuals who provide internal audits (Institute of Internal Auditors 2016a). Most notably, 1300 mentions that the QAIP can also be used to measure the appropriateness of internal audit practices and identify areas of enhancement (Erasmus and Coetzee 2018) .

Dejnaronk *et al.* (2015) found that QAIP positively influences internal audit effectiveness. Furthermore, the researchers mentioned that a properly executed and focused quality assurance review that includes both internal and external assessment provides numerous benefits to the internal audit activities and subsequently to the organisation. Hence, Standard 1310 strongly recommends that QAIP should cover internal assessments along with external assessments to evaluate internal audit effectiveness.

2.4.13 Risk Based Audit Programme and Consulting on Risk

Internal audit function is considered effective if its audit programme is risk-based (Drogalas and Siopi 2017). A risk-based audit programme accounts for all possible risks that could impact the organisation and those with high negative impact are prioritised in the audit planning (Institute of Internal Auditors 2016a). Lenz and Hahn (2015) assert that an effective internal audit function is expected to review major

areas of risk within the organisation. In doing so, internal auditors, when conducting internal audit engagements, are expected to evaluate key risk and update the risk register with the audit findings (Erasmus and Coetzee 2018). Coetzee and Erasmus (2017) emphasise the consulting role that internal auditors should play regarding risk; a risk based internal audit function generally provides both strategic and operational consultation.

Prior studies (Dejnaronk *et al.* 2015; Erasmus and Coetzee 2018) investigated the association between the use of risk-based audit programmes and effectiveness of internal auditing. Both studies found that the relationship between the variables is positive. Dejnaronk *et al.* (2015) are of the view that those internal audit functions that focus on risk-based approaches are more likely to receive support from senior management and audit committees of the organisation.

2.4.14 Standing of Internal Audit Function

IIA define internal audit function as a department, division, or team of consultants that provides “independent, objective assurance and consulting services designed to add value and improve organisation’s operations” (Coetzee *et al.* 2017). Likewise, Mubako (2018) asserts that the internal audit function can be established in-house or outsourced, with both options expected to yield favourable returns regarding the effectiveness of governance, risk management, and internal control frameworks. Internal auditing Standard 1111 recommends that the internal audit function be positioned at a level that allows the chief audit executive to directly interact with the organisation’s board of directors in order to enable the function to become familiar with strategic operations of the business which will allow identification of high risk areas that need their rapid intervention (Institute of Internal Auditors 2016a).

Erasmus and Coetzee (2018) state that the internal audit function is correctly positioned in the organisation provided that the audit committee structure conforms to regulatory requirements, and that the audit committee:

- i. Addresses internal audit findings
- ii. Monitors internal audit function recommendations and implementation thereof
- iii. Members are objective and independent
- iv. Is involved in combined assurance

The correct positioning of internal audit function regarding reporting audit lines within the organisation is essential. According to Cox (2017), before the 1990s all matters of internal audit function were reported to the chief financial officer (CFO), then after 2010 the audit committee was introduced to the reporting lines. Due to the new definition of internal audit with more emphasis on independence and value adding, two lines of reporting were introduced. The first involves functional reporting to the audit committee through the chair and the board of directors, and the second administrative reporting to the chief audit executive (CEO). Cox (2017) and the Institute of Internal Auditors (2017a) outline the differences in the two lines of reporting suggested by internal auditing Standard 1110 (organisational independence) as follows:

Functional reporting to audit committee and board of directors (governing authorities) shall include, but not be limited to:

- i. Signing an internal audit charter for approval.
- ii. Authorising employment and deployment of the head of internal audit function.
- iii. Authorising a risk-based audit plan.
- iv. Evaluating internal audit reports for audit quality, performance, and other related matters.
- v. Observing internal audit function compliance with professional internal audit practices.
- vi. Arrange private meetings in the absence of management with the chief audit executive at least once in a year.
- vii. Discuss internal audit scope limitations that may hinder internal audit responsibility or execution.

Administrative reporting to the chief executive reporting (CEO) shall include but not be limited to:

- i. Resources and annual financial budget for internal audits.
- ii. Providing business services to internal audit comprising working space, computers and other equipment.
- iii. Human resource administration.

Many of the research studies prove that the independence of internal auditors is positively associated with the functional reporting line of the internal audit department (Abbott, Parker and Peters 2010; Abdolmohammadi, Ramamoorti and

Sarens 2013; Chartered Institute of Internal Auditors 2014; Coetzee and Lubbe 2014; Coetzee, Fourie and Burnaby 2015; Erasmus and Coetzee 2018). Furthermore, all authors agree that in the absence of functional reporting to the audit committee and the governing authorities, internal audit independence is diluted and subsequently its effectiveness to the organisation is reduced. Therefore, the literature reveals that functional reporting results in an independent internal audit function which results in effective internal audit activities.

Recent research has found the proper standing of the internal audit function impacts the effectiveness of internal auditing (Kabuye *et al.* 2017; Erasmus and Coetzee 2018). Both studies suggest that the establishment of audit committee to improve the relationship between internal audit function standing and its effectiveness. If auditors are correctly positioned, they are more likely to enhance fraud management (Kabuye *et al.* 2017) and be able to provide audit committee with assurance that internal audit function is not underrated within the organisation (Erasmus and Coetzee 2018).

2.4.15 Information Technology Tools

Information technology (IT) is widespread and significantly impacts the way business is conducted nowadays. IT shortens the time of processing data and multitasking while working with the computer. To take advantage of the benefits of IT organisations have decided to adopt multiple information systems to help them with process efficiency while striving for achievement of their business objectives (Dwivedi *et al.* 2015). Keeping information security controls up to date is the common practice of organisations in order to ensure information correctness, protection and availability (Wu *et al.* 2017). According to Henderson, Davis and Lapke (2013), providing assurance to management of the organisation that information security controls are adequate and achieving their intended purpose resides with internal auditors.

Hence, IIA's Standard 1210.A3 states that "Internal auditors must have sufficient knowledge of key information technology 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" (Institute of Internal Auditors 2017b). The institute further elaborates that auditors must be able to use

computerised auditing tools to evaluate fraud risk, identify risks of material misstatement, and assess audit evidence. These computerised audit tools include word processing, spreadsheet and graphics. Likewise, Pedrosa and Costa (2012) and Abou-El-Sood, Kotb and Allam (2015) point out that computerised assisted auditing tools (CAATs) assist greatly in speeding up the work of internal auditors. Henderson, Davis and Lapke (2013) state that CAAT tools can assist organisations in two ways; firstly, they enhance the quality of internal audit processes, secondly make the complex audit task more manageable.

According to the literature, IT benefits internal audit in many ways. Abou-El-Sood, Kotb and Allam (2015) highlight that IT has a vital role in promoting the capacity of internal auditors during the audit process. Pedrosa and Costa (2012) believe that auditing technology positively influences the audit planning, execution, reporting and follow-up phases of the audit while improving internal audit effectiveness. Furthermore, Alkebsi and Aziz (2018) note that management support for internal audit is important for IT audit resource funding. Table 2.3 outlines the critical internal audit effectiveness factors as found by the scoping literature review.

Table 2.3: Summary of major internal audit effectiveness factors

Factor	Description	Source
Competence	The understanding and the ability possessed by internal auditors to carry out their duties	Al-Matari, Al-Swidi and Fadzil (2014) Alzeban (2014) Hailemariam (2014) Drogalas, Karagiorgos and Arampatzis (2015) Mustika (2015) Salehi (2016) Ahmed (2016) Rudhania, Vokshi, and Hashani (2017) Ali (2018) Erasmus and Coetzee (2018)
Independence and objectivity	The standing and reporting lines of the internal audit function and the impartiality of internal auditors	Hailemariam (2014) Dejnaronk <i>e. al.</i> (2015) Drogalas, Karagiorgos and Arampatzis (2015) Mustika (2015) Ahmed (2016) Salehi (2016) Rudhania, Vokshi, and Hashani (2017)

		Ali (2018) Erasmus and Coetzee (2018)
Management Support	Senior management support for internal audit function including human resources and finances	Alzeban and Gwilliam (2014) Hailemariam (2014) Dejnaronk <i>et al.</i> (2015) Drogalas, Karagiorgos and Arampatzis (2015) Ahmed (2016) Salehi (2016) Rudhania, Vokshi, and Hashani (2017) Ali (2018)
Relationship Between Internal and External Auditors	Cooperation and communication between internal and external auditors to minimise duplication of effort and ensure audit coverage	Alzeban (2014) Badara (2014) Mustika (2015) Salehi (2016)
Internal Audit Quality	Internal audit function achieves its established objectives	Drogalas, Karagiorgos and Arampatzis (2015) Ahmed (2016) Rudhania, Vokshi, and Hashani (2017)

The factors listed in Table 2.3 were most rated as key drivers of internal audit effectiveness. This study will validate these factors in the context of a public higher education institution as shown in the research instrument of the study.

2.5 Critique of Internal Audit Effectiveness Models

Section 2.3 of this chapter presented and discussed the details of internal audit effectiveness measurement models developed by individual scholar/researchers. The following limitations were noted:

- i. Identified measurement models do not show the degree to which internal audit affect (add value) the performance of the organisation.
- ii. There is a lack of integrated internal audit effectiveness models to measure internal audit effects on the performance of the organisation to obtain better research results.
- iii. There are few internal audit effectiveness measurement models validated in higher education institutions.
- iv. None of the internal audit effectiveness models has been validated specifically for performance of public higher education institutions.

- v. Most scholars have used a multiple regression analysis model which may fail to deal with problems of multicollinearity (Olusegun, Dikko and Gulumbe 2015). This may be true since the above frameworks on internal audit effectiveness do not show any correlation between the independent variables.

Although various models and frameworks have been developed in the context of internal audit effectiveness factors, insufficient care has been observed in evaluation of internal audit effectiveness at a public higher education level. Moreover, it is noted that models discussed in 2.6 were developed in foreign countries such as Thailand, Ethiopia and Saudi Arabia not in South Africa. This leads to the need to validate a novel evaluation model of internal audit effectiveness especially in a public higher educational setting. In Chapter 3 of this dissertation the advanced evaluation model is presented to as the tool used in this study to evaluate internal audit effectiveness.

2.6 Models of Evaluating Organisational Performance

2.6.1 Performance Indicators

Every organisation is striving to achieve its set of objectives with the aim of achieving their strategic vision in the long run. For organisational objectives to be achieved, performance indicators at departmental levels are determined as key drivers of daily performance expected from both managers and staff involved in a business process. Strelnik, Usanova and Khairullin (2015) defined performance indicators as a set of predetermined targets that the division of the organisation employ to track their level of performance towards achieving departmental objectives and subsequently the organisational objectives. At the same time, organisations invest in internal auditing practices to help them achieve their predetermined targets. Coetzee *et al.* (2017) perceive that internal auditing practices are implemented in the organisation to assess if processes and sub-processes of the organisation are conducted efficiently and economically; assess if organisational finance processes are accurate and fairly presented; assess if the organisation as a whole adheres to approved internal and external policies and procedures; assesses if the organisation has the latest technology, etc. Cox (2017) points out that the expansion of internal auditing scope

has resulted in internal auditors being able to add value at both financial and non-financial process levels. This expansion in internal auditing scope reiterates the necessity of internal auditors. Valdez *et al.* (2017) and Gallo *et al.* (2018) observe that measuring performance in an organisation nowadays requires the consideration of both financial and non-financial indicators.

2.6.1.1 Financial Performance Indicators

The common method of measuring performance in an organisation is through financial performance indicators. Organisations normally determine their success based on how well they do financially, including their profitability indexes (de Andrade *et al.* 2018). This measure involves reflecting on past performance to enable the organisation to evaluate its growth, return and risk control regarding its operating strategies. According to Schönbohm (2013) and Gajic *et al.* (2014), financial performance indicators include but are not limited to: cash flows, return on assets, earnings before interest, taxes, depreciation, and amortisation, current ratios, acid test ratio and much more. Ahmad and Soon (2015) point out that financial indicators in institutions of higher education may be different from these but they all achieve the same objective in measuring the financial status of the organisation. Bogićević, Domanović and Krstić (2016) and Gallo *et al.* (2018) state that all financial indicators are meant to measure liquidity, profitability, leverage, and operating efficiency of the division or the entire organisation. Financial indicators such as efficient utilisation of resources, capital spending ratio, better cash flows, and operational costs are necessary to track the financial status of the higher education institutions (Ahmad and Soon 2015; Rošulj and Petrović 2020).

2.6.1.2 Non-Financial Performance Indicators"

According to Al-Hosaini and Sofian (2015) measuring organisational financial indicators alone neglects many important non-financial processes. Ramalho (2016) proposed that for organisations to be good corporate citizens they must prioritise the needs of their stakeholders. Stakeholders include employees, customers, and society. The origin of balanced scorecard indicators has broadened to include customer perspectives, internal processes, and learning and innovation perspectives when measuring performance of organisations, classifying these as non-financial indicators

(Bogićević, Domanović and Krstić 2016). According to Reda (2017), consideration of internal business processes is profound as it allows organisations to analyse their current internal ability to react to the needs of their stakeholders. Ahmad and Soon (2015), Al-Hosaini and Sofian (2015) and de Andrade *et al.* (2018) concur that in order to satisfy the needs of business stakeholders the internal business processes must be clear, innovative, risk managing, and allow for reduction of operational delays in business transactions. Among other non-financial indicators discussed in the literature, the commonly used ones are; compliance with internal policies and procedures, labour improvement, reduction in operational delays, inter-functional cooperation, and productivity ratio (Gabčanová 2012; Strelnik, Usanova and Khairullin 2015; Rošulj and Petrović 2020). Sencan and Karabulut (2015) propose that student and staff satisfaction, student retention rate, student drop-out rates, and the percentage of students graduating on time are very important non-financial performance indicators when measuring performance in the context of higher education institutions.

2.6.2 Performance Indicators in Higher Education Institutions

Universities play a vital role in determining the welfare of the nation. Therefore, it is of paramount importance that university performance is measured to ensure that they are satisfying the needs of their stakeholders. Like any other non-profit organisation, public higher education institutions are required to meet the needs and desires of all interested third parties (Sudirman 2012). These stakeholders encompass both internal and external stakeholders, ranging from government, donors, communities, alumni, students, staff, and parents. The minister of the South African Department of Higher Education and Training (Republic of South Africa, Department of Higher Education and Training 2016) has called for a policy in accordance with the Continuing Education and Training Act sec 41A that higher education universities and colleges have a responsibility to submit annual financial reports to the government. These reports provide government with evidence regarding whether public resources have been used in accordance with the university's plan. In preparing a financial report, internal auditors have a vital role to assist university management by giving internal assurance that university financial records are prepared in line with approved accounting standards.

Several studies have been carried out to determine performance measures in higher education institutions. For instance, Brown (2012), Ahmad and Soon (2015), Reda (2017) and Valdez *et al.* (2017) believe that the most common performance measures used in higher education are graduation rates, student retention, faculty teaching load, throughput rates, and use of technology/distance learning. Furthermore, Sencan and Karabulut (2015) suggests that higher education indicators should be divided into three groups: input, process, and results. Input indicators relate to education infrastructure of the organisation and define the resources necessary to provide quality training such as financial, physical, and human resources. Process indicators are satisfaction with education received, with the level of acquiring knowledge, with the level reflected in the behaviour of the student. And those indicators that focus to results are timely graduation rates, drop-out rates, and scholarship acquisition rates due to success.

Various authors have shared their dissatisfaction about the traditional models used by universities to measure performance. These authors highlight that traditional methods do not measure performance as a holistic operation but rather from a financial perspective only. Arising from this observation, these authors call for the use of a balanced scorecard model to measure performance in public higher education institutions (Brown 2012; Sudirman 2012; Al-Hosaini and Sofian 2015; Sencan and Karabulut 2015). The terms 'scorecard' has been preferred by these authors because of its ability to measure performance by considering various perspectives such as financial, customers, internal processes, and innovation and learning perspectives. Sudirman (2012) suggests a strategic model (Figure 2.10) to measure the performance of public universities using a balanced scorecard method:

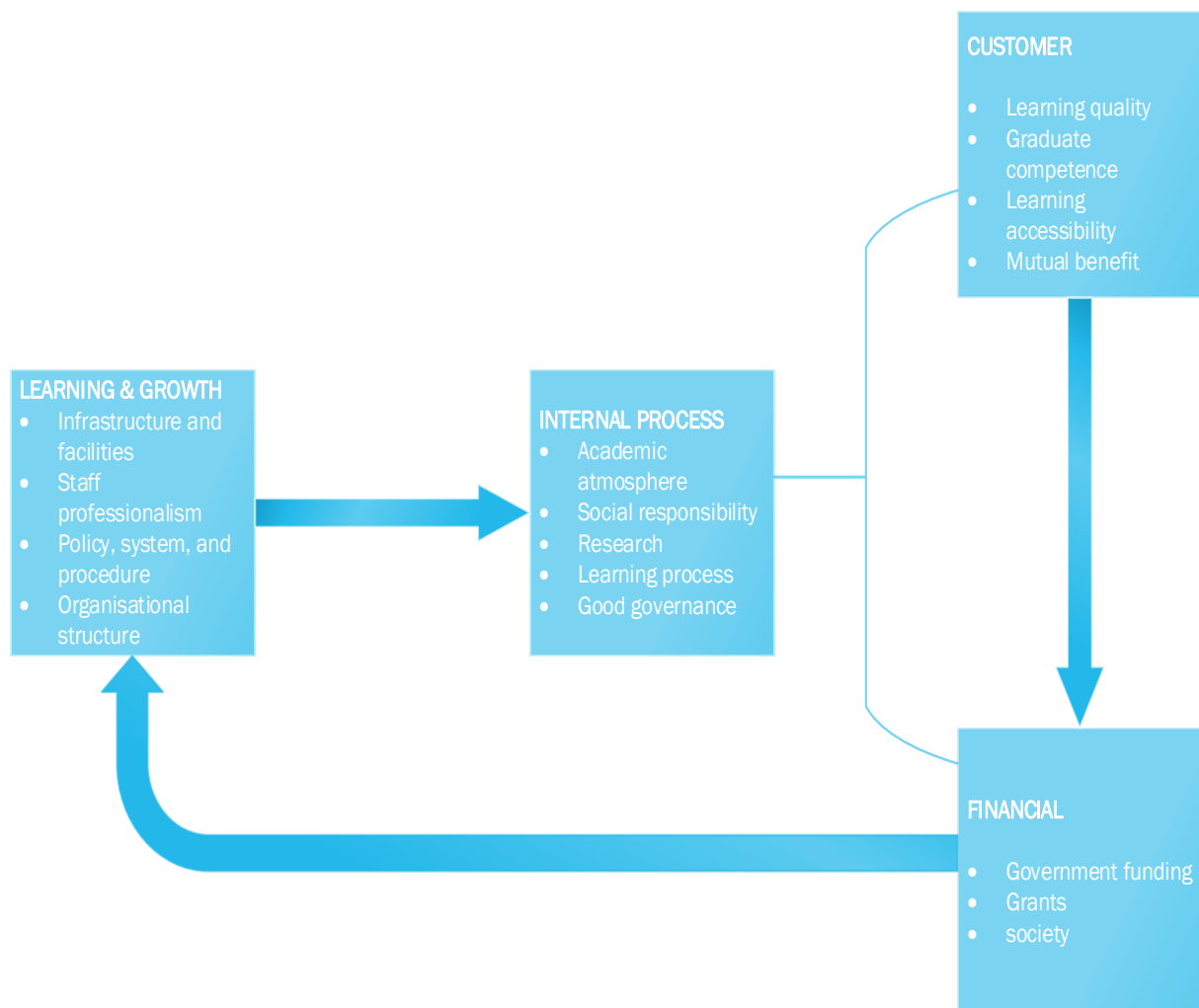


Figure 2.10: Balanced scorecard model of performance in higher education

Source: Sudirman (2012)

Recent papers that have applied a scorecard as performance measurement tool in public higher education institutions are summarised below.

Table 2.4: Summary of reviewed research studies that emphasise a balanced scorecard model to measure higher education institution performance

Author	Title of research paper	Perspective
Zolfani and Ghadikolaei (2013)	Performance evaluation of private universities based on balanced scorecard: empirical study based on Iran	Financial, customer, learning and growth, and internal processes
Franceschini and Turina (2013)	Quality improvement and redesign of performance measurement systems: an application to the academic field	Financial, internal processes, learning and growth and customer perspective
Jairak and Praneetpolgrang (2013)	Applying IT governance balanced scorecard and	Corporate contribution, stakeholders, operational

	importance – performance analysis for providing IT governance strategy in university	excellence, and future orientation
Atafar, Shahrabi and Esfahani (2013)	Evaluation of university performance using BSC and ANP	Internal processes, financial perspectives, customer, learning and growth
Pineno (2013)	Sustainability reporting by universities and corporations: an integrated approach or a separate category within the balanced scorecard	Customer perspectives, financial, internal processes, learning and growth
Weerasooriya (2013)	Adoption of the balanced scorecard (BSC) framework as a technique for performance evaluation in Sri Lankan universities	Customer, financial, internal processes, learning and growth
Chalaris, Chalaris and Gritzalis (2014)	A holistic approach for quality assurance and advanced decision making for academic institutions using the balanced scorecard technique	Customer, financial, internal processes, learning and growth
Libing, Xu and Ruiquan (2014)	Application of the balanced scorecard in the university budget management	Financial perspective, customer, internal processes, learning and growth
Beard and Humphrey (2014)	Alignment of university information technology resources with the Malcolm Baldrige results criteria for performance excellence in education: a balanced scorecard approach	Scholar knowledge and process results, customer-focused results, stewardship and governance results, financial results
Zhang <i>et al.</i> (2014)	Application research of BSC theory in the salary design of teachers in college and university	Student, teachers' contribution, research outcomes, personal ascensions
Al-Hosaini and Sofian (2015)	A review of a balanced scorecard framework in higher education institutions (HEIs)	Customer perspectives, financial results, in-house processes, learning and growth
Ahmad and Soon (2015)	Balanced scorecard in higher education institutions: what should be considered?	Customer, finance, learning and growth, internal processes
Hladchenko (2015)	Balanced scorecard: a strategic management system of the higher education institution	Customer, financial results, organisational processes, learning and growth
Reda (2017)	Balanced scorecard in higher education institutions: congruence and roles to quality assurance practices	Customer, finance, learning and growth, internal processes
Valdez <i>et al.</i> (2017)	Development and implementation of the balanced scorecard for a higher educational institution using business intelligence tools	Students, financial, internal processes, training, and learning

de Andrade (2018)	A proposal of a balanced scorecard for an environmental education programme at universities	Financial results, internal process, innovation and growth, and customer perspectives
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2.7 Summary

Previous work related to the research domain including internal audit practices, internal audit effects, internal audit effectiveness factors and their measurement models were discussed in this chapter. The intention was to provide a comprehensive literature review that scopes the topic of this study. Having presented the effect of internal audit on performance of the organisation and the measurement models of this effect, the review of these measurement models has proven to be inadequate to measure internal audit effectiveness at a public higher education level. The following chapter will explain the methodological steps undertaken by this study to respond to the questions of this study.

CHAPTER 3: RESEARCH METHODOLOGY

Methodological steps followed to respond to the study research questions outlined in Chapter 1 are presented in this chapter. These methodological steps are identified according to the procedure employed to respond to the research questions arising from the research problem of this study. The scoping review methodological framework founded by Arksey and O'Malley (2005) was adopted to identify internal audit practices and measures regarding their effectiveness (RQ1). A scorecard model was used to identify measures of performance in public higher education institution (RQ2), followed by data collection to help link internal audit process effects with organisational performance. This chapter outlines the combined research model consisting of process and scorecard model employed to determine the effect of internal auditing practices on performance of a public higher education institution (RQ3).

3.1 Identification of Internal Audit Practices and Measures of their Effectiveness

Identification of internal audit practices and measures of their effectiveness was outlined as the first research question in this study (RQ1). To accomplish this, the scoping of literature review methodological approach of Arksey and O'Malley (2005) was used. This research approach was adopted because it explores the breadth and relevance of the research domain (Schmidt *et al.* 2018). For the purposes of this study, the scoping review approach assisted the researcher to chart the internal audit effectiveness research domain and identify gaps, relevant research sources, and empirical evidence regarding internal audit research and practice.

Five phases of scoping review approach were adopted to help in charting the internal auditing effectiveness domain of this study, as identified by Arksey and O'Malley (2005) (Table 3.1).

Table 3.1: Phases of the scoping review procedural approach

Phase 1	Research question identification
Phase 2	Searching for related studies
Phase 3	Selecting relevant studies
Phase 4	Charting the data
Phase 5	Collating, summarising, and reporting the results

3.1.1 Review Procedures

The review procedure applicable in this study is discussed in this section following the pattern outlined in Table 3.1 above. The review started by identifying research questions in Chapter 1; the research questions guided the way in which the search strategies were built. The research questions were identified according to the research domain as being “internal audit effectiveness”. The following step involved a search of studies that were relevant in answering the research questions of the study. This search involved accessing multiple sources of knowledge including journal and electronic databases, existing networks, Institute of Internal Auditors’ websites, reference lists, and conference databases. In addition, the research used search engines to retrieve journal articles from databases such as Google scholar, DUT Summon, Web of Science, Science Direct, Springer LNCS, and IEEE Explore. These databases were chosen because they cover a wide range of disciplines. The search timeframe was limited to the period January 2014 to 2019, and to English language papers. Research papers that were written in other languages were excluded from the search. Articles which were considered after screening the title and abstract were secured for consequent evaluation of full text article. Table 3.2 displays a set of strategic words that were used to direct the search as the minimum inclusion criteria for this study. Papers that were adjudicated as outdated and unrelated to the internal auditing effectiveness domain were excluded. The concluding step involved summarising and interpreting the papers that were relevant for this study.

Table 3.2: Key words used in search strategy

Keywords	
1.	Internal audit practices
2.	Internal audit effectiveness
3.	Factors influencing internal audit effectiveness
4.	Internal audit effectiveness measurement

3.1.2 Review Findings

The contents of 50 studies connected to the effect of internal audit on organisational performance were analysed. Twenty-nine (58%) studies were directly connected to internal audit effectiveness. Nine (18%) studies focused on both internal audit effectiveness and organisational performance other than public higher education institutions and twelve (24%) studies focused on measurement of performance in public higher education institutions. Features of the studies that were directly connected to internal audit effectiveness and organisational performance were considered for further analysis. Table 3.3 displays the facts about these considered studies.

Table 3.3: Effect of internal audit on organisational performance analysis

Author	Study		Focus		Country		Higher Educ.	
	1	2	1	2	1	2	1	2
Al-Matari Al-Swidi and Fadzil (2014)	X			X		X		X
Ali (2018)		X		X		X		X
Dellai and Omri (2016)		X		X		X		X
FareedMastan <i>et al.</i> (2015)		X	X			X	X	
Jiang Messier and Wood (2016)		X		X		X		X
Mihret, James and Mula (2010)	X			X		X		X
Salehi (2013)		X		X		X		X
Salehi (2016)		X		X		X		X
Ziniyel <i>et al.</i> (2018)		X	X			X	X	

KEY:

Study type (Conceptual=1; Empirical=2)

Focus (Public sector=1; Private sector=2)

Country (South Africa=1; Other=2)

Higher Education Institution (Yes=1; No=2)

As can be seen from Table 3.3, 22,22% of studies used a conceptual framework while the rest of the studies were based on an empirical method (77,78%). The majority of studies focused on effects of internal audit in the private sector (77,77%) while the remainder focused on the public sector (22,23%). It was also noted that none of the studies were conducted in South Africa, as 100% of these studies were performed in countries such as Ghana, Tunisia, and India. This points out a gap, that such studies need to be conducted in South Africa. Lastly, little attention has been paid to institutions of higher education, considering that only 22,22% of studies

focusing on institutions of higher education and the remainder (77,78%) on other institutions such as banking.

3.2 Identification of Measures of Performance in a Higher Education Institution

In response to the second research question (RQ2), this study employed a scorecard model in order to identify measures of performance in a public higher education institution. Measuring performance is a critical contributor to success in business. Businesses use different key performance indicators to help track the performance of their divisions or organisations. The traditional method of measuring performance (considering only the financial perspective) has proven to have many limitations (Brown 2012; Al-Hosaini and Sofian 2015; Valdez *et al.* 2017; and de Andrade *et al.* 2018). Due to the limitations of this method, de Andrade *et al.* (2018) suggested a scorecard model as a more useful tool to measure performance in order to close the gaps that are evident in the traditional model.

In this study, a scorecard model was used to measure the extent to which performance (dependent variable) indicators vary as a result of internal audit effects. Performance indicators of processes and sub-processes were considered in order to measure performance which included both financial and non-financial indicators. The significance of these indicators was measured on a scale of 1 to 5, with 1 for insignificant and 5 for very significant. By employing a scorecard model in this study, the following was achieved:

- Effect of process and sub-process performance indicators, internal audit process effects, and internal audit effectiveness factors on public higher education performance indicators.

3.3 Data Collection and Participants

The research strategy chosen in this study relied on two departments of the public higher education institution studied in order to allow the evaluation and first validation of an advanced evaluation model of enterprise resource planning (ERP) system effects in the context of internal auditing. Following the prescription of Sekaran and Bougie (2016), a first case, normally called pilot case, was evaluated with intention of allowing a better structuring of the succeeding case. Case studies are regarded as

appropriate for examination in cases where the topics of evaluation cannot be clearly distinguished, as is the case with the topic of internal audit effectiveness. Case studies play a significant role in evaluation studies, in that they can explain measured variables that are too intricate to be enlightened by other research strategies (Sekaran and Bougie 2016). In this study, the decision on a case study is warranted by the fact that the assessment of internal audit effects is a phenomenon that is relatively new, and innovative measurement tools need to be developed. In selecting the two cases for this study, the following criteria were applied:

- i. The institution chosen must be a public higher education institution.
- ii. The department must have been internally audited whether by an in-house audit department or outsourced audit firm.
- iii. The departments chosen within the institution must have been internally audited in the previous 2 years.

In justifying the criteria above, the first criteria was chosen for the reason that public higher education institutions are obliged to have their processes internally audited in accordance with section 38 (a) (ii) of the Public Finance Management Act 1 of 1999. The second criteria was chosen on the basis that internal audits can be provided by an in-house audit department or an outsourced audit firm depending on the decision made by the management of the university. Lastly, the third criteria was chosen on the assumption that it takes time for an outsourced audit firm to understand the processes of the organisation they audit.

The instrument used for the in-depth collection of data in this study was a questionnaire which was administered by the researcher to senior managers, managers, and experienced non-managers of the studied departments. This data collection method enabled the researcher to achieve triangulation and reach corresponding conclusions regarding the investigated phenomenon (Leedy and Ormrod 2015). The questionnaire consisted of four sections: (1) demographics of the respondents, (2) significance of performance indicators of the institution, (3) process effects of internal audit through automation, information and transformation effects, and, (4) the internal audit effectiveness factors that affect public higher education performance. All the respondents had to respond to all the sections of the questionnaire regardless of their status within their departments, based on their interaction with internal auditors.

The use of an appropriate data collection instrument allows for the results obtained to be discussed and compared within the selected theoretical framework (Lilis and Pinheiro 2012). The respondents were asked to indicate the level of significance of performance indicators with options: 1 (insignificant) to 5 (most significant); the effect of internal audit on performance indicators with options: 0 (no effect) to 3 (strong effect); and the effect of internal audit effectiveness factors on performance indicators with options: 1 (no effect) to 3 (strong effect).

The quality of the research strategy chosen was ensured through aspects of credibility, transferability, dependability, and conformability (Sekaran and Bougie 2016). The first step that was necessary to prove the credibility was the authenticity with which this research was conducted. Research data was collected by using a well-designed questionnaire with senior managers, managers, and experienced non-management staff, therefore trustworthiness of data collected, methods and data sources were performed. Transferability of the methodology was augmented in three ways: (1) by description of the case under examination, (2) by comparing results obtained to the existing theoretical knowledge, and (3) by the use of a generic approach. Dependability was ensured by the comprehensive documentation of the research process and results. In ensuring that case study's conclusions accurately reflect the results obtained and are free from the researcher's bias, that is, confirmability, care was taken to anchor these results in the underlying data. Previously denoted measures of credibility and transferability also contribute to confirmability, namely validating results with respondents and confronting the results to existing theories.

3.3.1 Population and Sampling

According to Blair (2013) and Sekaran and Bougie (2016), population refers to all elements about which inference are to be made, also referred to as the targeted population. A sample is a subset of the population (Blair 2013). Purposive and census sampling was adopted in this study. The study targeted four Public Higher Education Institutions in the Kwazulu-Natal province. Since it was not possible to study all the four Public Higher Education Universities due to access issues and limited financial resources to reach these institutions, only one Public Higher University was sampled for data collection and it was in good position to provide the information

needed to solve the research problem (Leedy and Ormrod 2015). In the chosen University, the study focused on two departments of the institution. The Finance and Human Resources departments were the selected departments for data collection purposes within the selected institution. The selected departments were identified as appropriate to provide information needed to resolve the research questions since these departments are internally audited yearly. The sample within the selected departments included all senior managers, managers, and non-management staff who interact with internal auditors when audits are performed in those departments, as shown in Table 3.4. In this study the targeted population and sample size were the same. White and McBurney (2013) consider this type of sampling as census sampling, where the targeted population and sample size is equal. The authors state that this type of sampling is advantageous because it allows feedback from all targeted population members. However, Babbie (2011) points out that there is a high possibility of participants declining to participate.

Purposive sampling is a non-probability form of sampling where the researcher does not generalise to a population but participants are sampled in a strategic way so that those sampled are relevant to answer research questions (Bayman and Bell 2011). In a case study approach purposive sampling applies to a sampling of cases in which research will be conducted and then to individuals within those cases (Bayman and Bell 2011). This study followed purposive sampling by distributing questionnaires to respondents as shown in Table 3.4.

Table 3.4: Targeted participants

Department	Finance Department	Human Resource	Total
Senior Managers	4	3	7
Managers	12	11	23
Non-managers	45	22	67
	61	36	97

3.4 Advanced Evaluation Model

The overarching purpose of this study was to evaluate the effect of internal audit practices on the performance of public higher education institutions (research question 3) in order to determine the value added by internal auditors on the

performance of public higher education institutions. This was achieved by combining a process model plus a scorecard model. An advanced model of evaluating the impact of enterprise resource planning (ERP) system on performance indicators of the organisation which as proposed by Gajic *et al.* (2014) was validated in the context of internal auditing. According to Gajic *et al.* (2014), an advanced evaluation model combines two models which include a process model and a scorecard model. A process model measures the effect of an independent variable on a dependent variable (Gajic *et al.* 2014). This model was employed in this study to cover areas shown below (3.4.1). The process model employed in this study differed in that it measured the effect of an independent variable on a dependent variable applying various automational, informational, and transformational effects. A scorecard model is defined by Sudirman (2012) as a way to measure performance through multiple dimensions. Reda (2017), Valdez *et al.* (2017), and de Andrade *et al.* (2018) reiterate that a scorecard model measures performance through different perspectives such as financial, internal processes, customer, and innovation and learning. This study finds a scorecard model to be a satisfactory measurement of performance as it measures performance on both financial and non-financial indicators. Figure 3.1 presents the advanced evaluation model which is validated in this study to evaluate the effect of internal auditing on performance indicators of a public higher education institution. This model closes a gap in internal auditing effectiveness studies to date, by connecting the factors of internal audit effectiveness to performance indicators of the organisation through automational, informational and transformational effects. Following the reasoning of this model, internal auditing implementation is deemed to affect business processes and add value to the organisation.

3.4.1 Process Model

A process model was used to measure internal audit process effects as an independent variable on public higher education performance (dependent variable). Employing a process model in this study helped to cover the following areas:

- i. Effect of internal audit effectiveness factors on the performance indicators of the institution. Measured in a scale of 1 (no effect), 2 (normal effect), and 3 (strong effect).

- ii. Effect of internal auditing practices on automational, informational, and transformational process effects of internal auditing.
- iii. Effect of internal auditing “process effects on the process and sub-process performance indicators. Measured in a scale of 0 (no effect), 1 (weak effect), 2 (average effect), and 3 (strong effect)”.

3.4.2 Advanced Evaluation Model Measures

The aim of this study was achieved through validation of an advanced evaluation model which combined a process model and scorecard model. The advanced evaluation model is the modification of the adaptable evaluation model (Uwizeyemungu and Raymond (2010) that was developed originally to address the effectiveness of enterprise resource planning (ERP) system to meet the requirements of process control and increasing profit margins through decreasing business costs. This study validated the process-based and scorecard model and found them more appropriate if used in together in one study. Having combined the two models, the general formula for the calculation of the effects of internal audit practices on key performance indicators (KPIs) is given in the following form:

$$\sum_{i=1}^n (a_i * b_i) * c_i$$

Where i is the numerical order of couple (internal audit process effect – PI performance indicator);

a is the significance of performance indicator: from 1 insignificant to 5 very significant;
 b is the degree of change of performance indicator due to internal audit process effect: from 0 no effect, 1 weak effect, 2 average effect, 3 strong effect (with a minus sign where the influence is negative);

c is the indicator of the effect of internal audit effectiveness factors on organisational performance indicators (1 no impact, 2 normal impact, and 3 strong impact).

The value of the total sum of $(a_i * b_i) * c_i$ represents the local effect of internal audit practices on performance indicators, while the sum of local effects, $\sum_{i=1}^n (a_i * b_i) c_i$ represents the global effect of internal audit practices on performance indicators. Figure 3.1 below represents the advanced evaluation model that was

applied in this study, with dotted lines indicating the focus areas of this research, while the solid lines present data which was collected from the institution of higher education studied.

The following data was obtained from the organisation studied:

- i. The type of internal auditing system (practices) implemented.
- ii. Processes of the organisation which are affected by internal audit practices.
- iii. Process and sub-process performance indicators.

The following areas were focussed on in this study:

- i. Effect of internal audit effectiveness factors on the implemented internal audit practices.
- ii. Effect of the implemented internal audit practices on process effects.
- iii. Effect of process effects on the process and sub-process performance indicators.
- iv. Effect of process effects, process and sub-process performance indicators and internal audit effectiveness factors on organisational performance indicators.

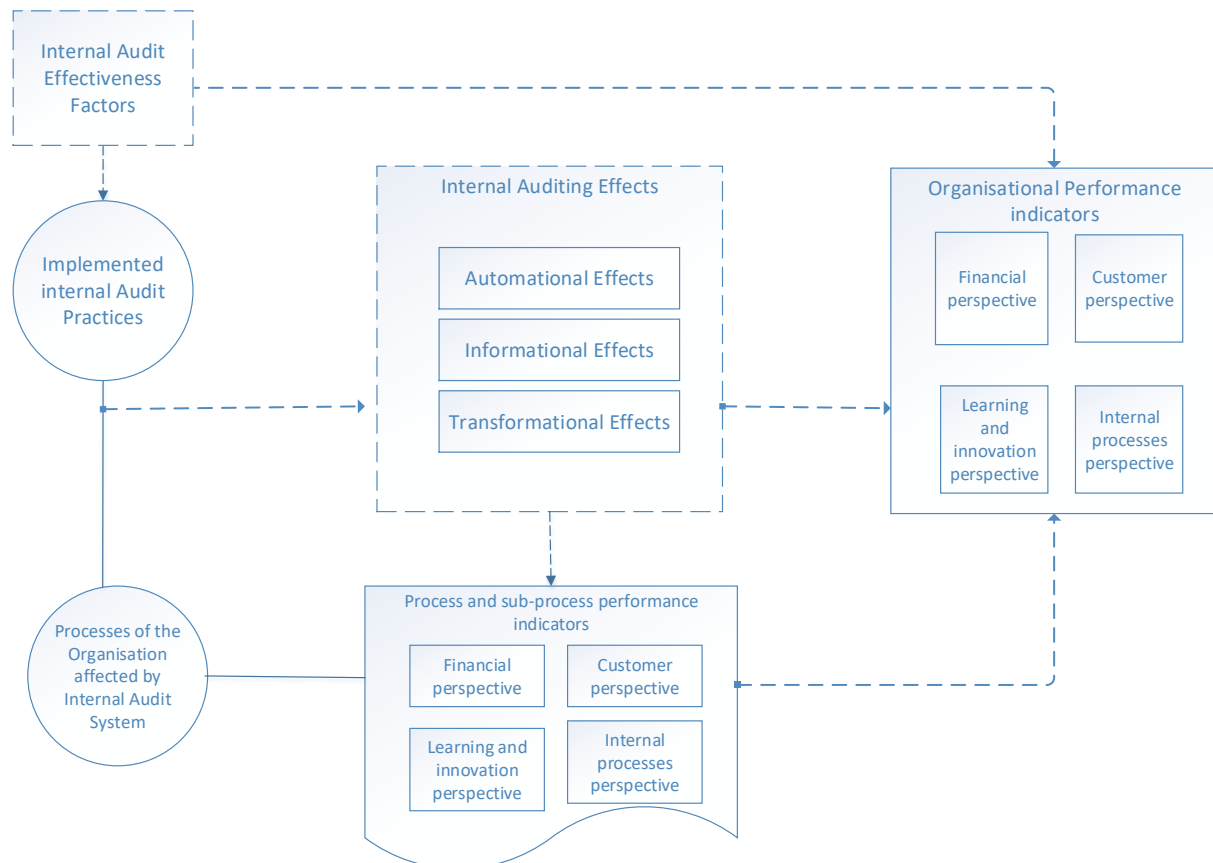


Figure 3.1: The advanced evaluation model

Adapted from: Uwizeyemungu and Raymond (2010), Alzeban and Gwilliam (2014), Gajic *et al.* (2014), Al-Hosaini and Sofian (2015)

3.5 Summary

This chapter described the methodological steps followed in this study. First, the scoping review methodological analysis to identify internal audit practices and measures of their effectiveness was presented. Next, the models to link the variables of the study were discussed leading to the development of a single model proposed for internal audit effectiveness. The variables of the study involved internal audit effects (measured by an internal process-based model) and the performance in a higher education institution (measured by use of a scorecard model). The next step discussed was the data collection method to validate the effects of internal auditing on performance in a public higher education institution. Lastly, the model for internal audit effectiveness was presented, based on the comprehensive literature review. The next chapter presents and interprets the data collected and discusses the results.

CHAPTER 4: EMPIRICAL RESULTS

The overarching aim of this study was to evaluate the effect of internal audit practices on the performance of public higher education institution in order to determine the extent of value added by internal auditors on the performance of a public higher education institution. This chapter presents the experimental results of internal auditing effects on institutional performance using a combined research model (RQ3). The combined model employed in this study consisted of both process and scorecard-based models.

4.1 Findings and Interpretation of Results

4.1.1 Comparative Analysis of the Two Cases in the Study

Table 4.1 below presents the characteristics of the two departments from the public higher institution that were chosen for this study. It is evident that the Finance Department is larger than the Human Resources Department with 61 and 36 employees respectively. The number of participants for this study were 48 from the Finance Department and 28 from the Human Resources Department yielding a 78,69% and 77,78% response rate respectively. Of note is that 12 participants in the Finance Department and 7 participants in the Human Resources Department respectively held management positions. The remainder of the participants were chosen for their experience in the daily processes where internal audits are deemed to add value.

Table 4.1: Characteristics of the two departments that participated in this study

Division	Finance	Human Resources
Number of employees	61	36
Participants in the study	48	28
Senior director	1	1
Section manager	11	6
Non-management employees	36	21

4.1.2 Measures of Performance in a Public Higher Education Institution

A balanced scorecard was employed to test the performance indicators (PI) which were significant for the operations of the institution of higher learning studied. This method was chosen for its ability to test the performance of an organisation using both financial and non-financial indicators as explained in Chapter 3. The performance indicators were tested based on financial, customer, learning and innovation, and internal processes perspectives as depicted in the charts below.

4.1.2.1 Financial Perspectives

Figure 4.1 shows the financial indicators which were measured in this study. The horizontal axis with labels 1 to 5 depicts the options which were available to respondents for each financial indicator which was tested (1: insignificant, 5: very significant). For each option given in the chart, the five performance indicators which indicate its degree of significance are shown in the form of bars. These performance indicators were: operating costs, better cash flow, effective use of budget, consolidated financial index, and capital spending ratio. The vertical axis of the chart shows the response rate from the respondents in each performance indicator that was tested. 44,74% of respondents revealed 'capital spending ratio' as an insignificant indicator while 'operating cost' was assessed as being very significant by 39,47% of respondents.

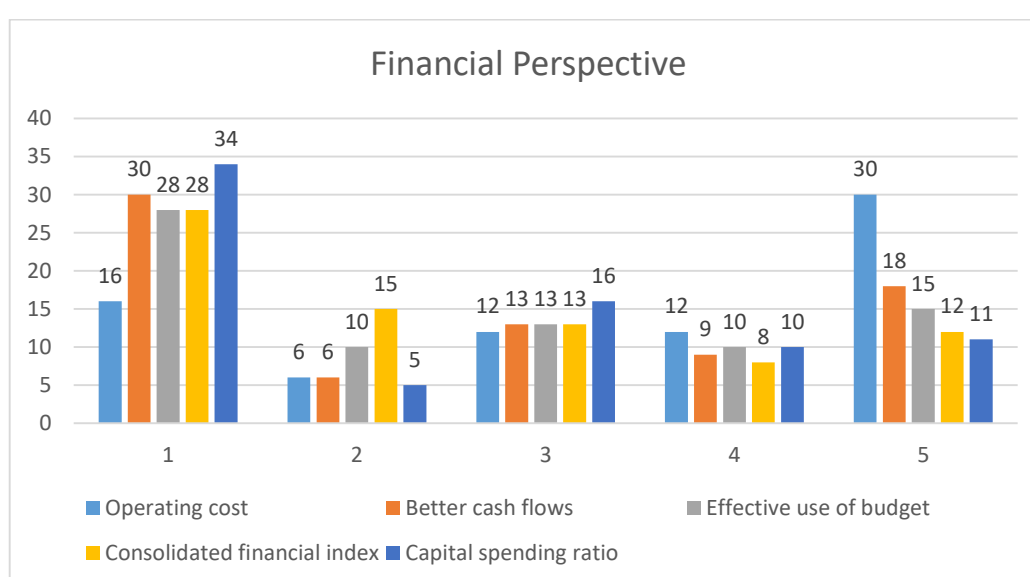


Figure 4.1: Financial perspective performance indicators

4.1.2.2 Customer Perspectives

The respondents were asked to rate the degree of significance of the performance indicators as depicted in the bars depicted in Figure 4.2 below with 5 rated as very significant and 1 as insignificant. The horizontal axis shows the options of rating the performance indicators. These performance indicators were: customer satisfaction, staff retention rate, students drop-out rates, student retention rates, and percentage of students graduating on time. The vertical axis of the chart shows the response rate from the respondents in each performance indicator that was tested. The results show that performance indicators with high rates of significance were 'customer satisfaction' (50%), 'student retention rates' (43,42%), 'student drop-out rates' (36,84%), 'percentage of students graduating on time' (35,53%) and 'staff retention rate' (32,89%).

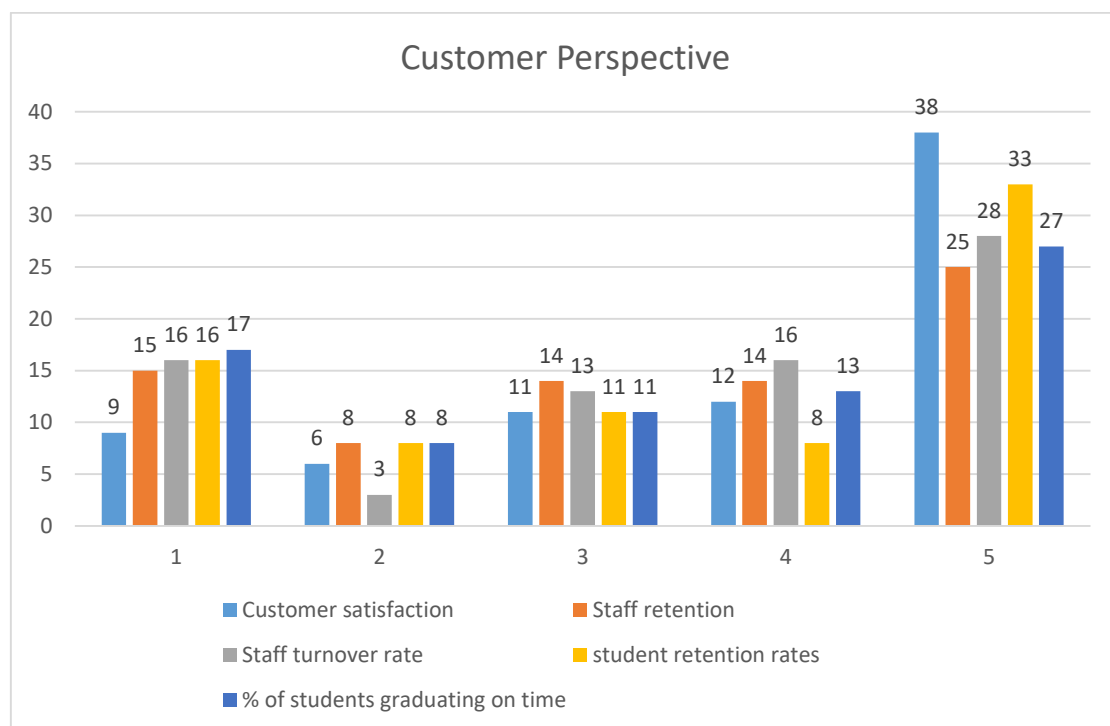


Figure 4.2: Customer perspective performance indicators

4.1.2.3 Learning and Innovation Perspective

The horizontal axis labelled as 1 to 5 in Figure 4.3 depicts the options which were available to respondents for the significance of each performance indicators

tested (1: insignificant, 5: very significant). These performance indicators were: labour improvement, percentage of training courses matching institution requirements, qualifications index, percentage of communication training to reduce customer complaints, and rewarding system improvement. The vertical axis of the chart shows the response rate from the respondents in each performance indicator tested. The results show that 'labour improvement' was the most significant performance indicator with a response rate of 50% (38/76). On the other hand, 'rewarding system improvement' was found to be the most insignificant performance indicator with a response rate of 22,37% (17/76).

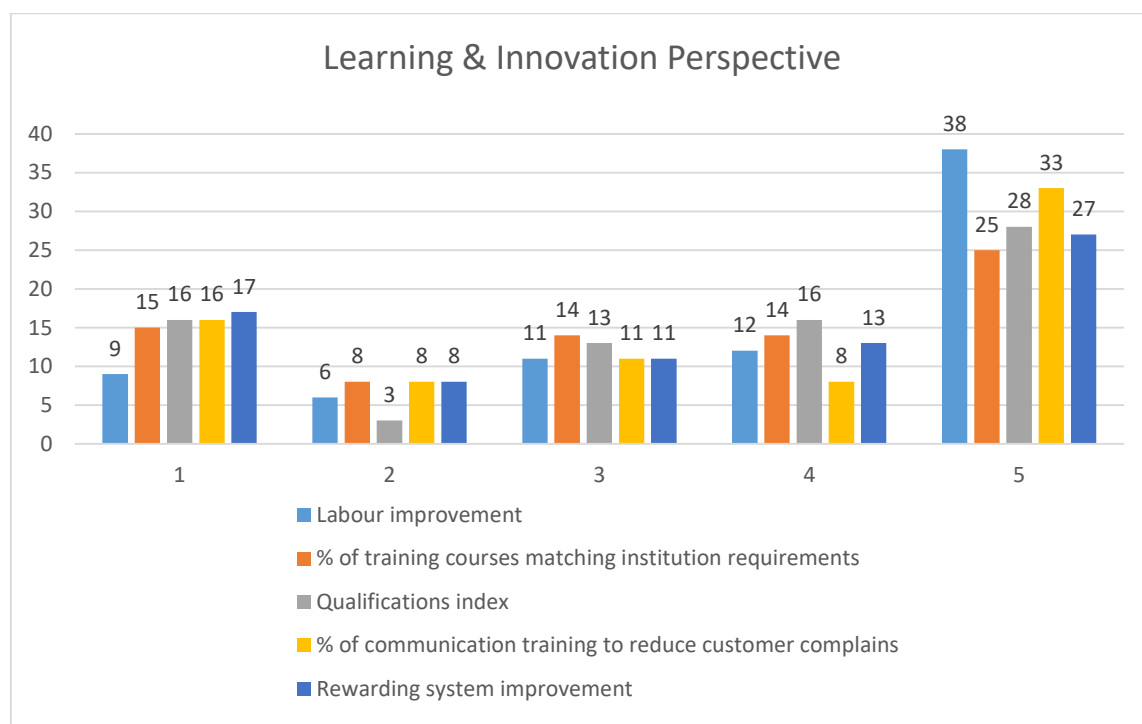


Figure 4.3: Learning and Innovation perspective performance indicators

4.1.2.4 Internal Processes Perspective

The horizontal axis labelled as 1 to 5 in Figure 4.4 below depicts the options which were available to respondents regarding the degree of significance of the performance indicators regarding internal processes (1: insignificant, 5: very significant). The performance indicators were: productivity ratio, staff rotation, reducing operating delays, inter-functional cooperation, and compliance with internal

procedures and policies. The vertical axis of the chart shows the response rate from the respondents in each indicator that was measured. ‘Compliance with internal procedures and policies’ was the most significant performance indicator with a response rate of 77,63% (59/76), while ‘Staff rotation’ was the most insignificant performance indicator with 27,63% (21/76).

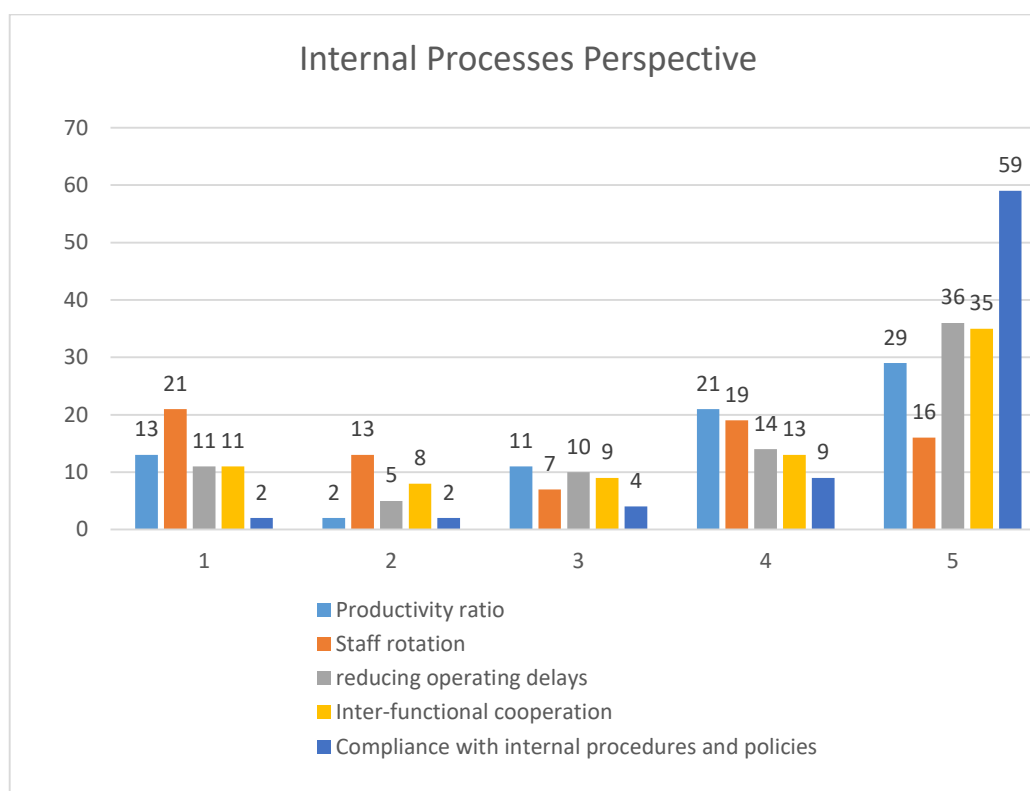


Figure 4.4: Internal processes perspective performance indicators

4.1.3 Internal Auditing Effects on Performance of a Public Higher Education Institution

The relationship between the effects of internal auditing and institutional performance indicators is defined in the following way (as shown in Table 4.2 – 4. 3): “measurements take into consideration the significance of each performance indicator (1 = insignificant to 5 = very significant) and the extent to which a variation in the indicator is attributable to the internal audit effect (0 = no effect, 1 = weak effect, 2 = average effect, 3 = strong effect). The effect of internal audit effectiveness factors on performance was evaluated as: 1 = no effect, 2 = normal effect and 3 = strong effect”.

The effects of internal audit practices were identified through questionnaires administered to senior managers, managers, and experienced non-management staff of the two audited departments of the studied institution. The senior managers, managers, and experienced non-management staff are responsible for the daily operation of the institution. “In this way, a single product $(a*b)*c$ was obtained for each (internal audit effect – performance indicator) couple and internal audit effectiveness factors as shown in Tables 4.2 and 4.3. The aggregate result comprises the sum of $(a*b)*c$ products. The general formula for the calculation of the local and global effects of internal auditing on key performance indicators is given in the following form”:

$$\sum_{i=1}^n (a_i * b_i) * c_i$$

Where i is the numerical order of couple (internal audit process effect – PI performance indicator); a is the importance of performance indicator: from 1 insignificant to 5 very significant; b is the degree of change of performance indicator due to internal audit process effect: from 0 no effect, 1 weak effect, 2 average effect, 3 strong effect (with a minus sign where the influence is negative); c is the indicator of the effect of internal audit effectiveness factors (IAEFs) on the organisation performance indicators (1 no impact, 2 normal impact, and 3 strong impact) .

The value of the total sum of $(a_i * b_i) * c_i$ represents the local effect of internal audit practices on performance indicators, while the sum of local effects, $\sum_{i=1}^n (a_i * b_i) * c_i$ represents the global effect of internal auditing on performance indicators. The sequence of steps followed in this study to perform this calculation is given below:

1. Parameters of performance indicators significance (a) and the degree of change in performance indicators which are the results of internal audit practices (b) were determined.
2. Number and values of $(a*b)$ couples were calculated.
3. The indicator of internal audit effectiveness factors of internal audit implementation was defined.

4. The sum of the results was calculated, i.e. calculate the product $(a*b)*c$ in order to establish the global effect of internal auditing practices on performance indicators.

Ideally, a strong internal audit effect is expected on each performance indicator (PI). In the same vein, no effect is expected in case of a negative impact. By keeping values of a_i constant and substituting all b_i values with constant values, a potential contribution of internal auditing to organisational performance will be made that will serve as a basis for comparison. A total of 31 pairs were identified (internal audit effect-PI) and internal auditing factors for both business cases, which produced the following results:

$$\sum_{i=1}^{31}(a_i * b_i) * c_i = 740 \text{ for finance processes}$$

$$\sum_{i=1}^{31}(a_i * b_i) * c_i = 737 \text{ for human resource processes}$$

The total score of 740 and 737 represents the maximum internal audit effects on the global institution performance for finance and human resource processes, respectively. These scores have shown the maximum effect that internal audit effectiveness factors such as competence of internal auditors, information technology tools, internal audit quality, effective audit committee, independence of internal auditors, management support and relationship between internal and external auditors can bring to business processes of these two cases.

Table 4.2: Internal audit effects on performance indicators of finance processes

		Performance Indicators (PI)						
Internal Audit Effects	Internal Audit Effectiveness Factors	PI Affected	i	A	b	c	a*b	(a*b)*c
Automational Effects								
Better management of processes	Competence of internal auditors	Productivity ratio	1	5	3	3	15	45
		Staff rotation	2	4	3	3	12	36
	Information technology tools	Labour improvement	3	5	3	3	15	45
Centralisation of operations	Relationship between internal	Increase in operating cost	4	5	-3	2	-15	-30

	and external auditors							
		Better cash flow	5	5	2	2	10	20
		Effective utilisation of budget	6	5	2	2	10	20
Effective use of resources	Competence of internal auditors	Capital spending ratio	7	2	3	2	6	12
		Productivity ratio	8	5	2	3	10	30
Improvement of financial, operational and compliance status	Sound knowledge of auditee processes	Operational delays	9	5	3	3	15	45
		Customer complains	10	5	-3	3	-15	-45
	Communication between internal and external auditors	Operating cost	11	5	3	2	15	30
	Independence	Compliance with internal policies and procedures	12	5	3	3	15	45
Decreased risk of losing assets	Sound corporate governance	Capital spending ratio	13	2	3	2	6	12
		Return on assets	14	2	3	2	6	12
Informational Effects								
Reliability of financial information	Effective audit committee	Student satisfaction	15	5	3	3	15	45
		Staff satisfaction	16	5	3	3	15	45
	External audit support for internal audit	Consolidated financial index	17	4	2	2	8	16
Mitigating errors in the process	Internal audit quality	Operational delays	18	5	3	3	15	45
		Student satisfaction	19	5	3	3	15	45
		Staff satisfaction	20	5	3	3	15	45
	Knowledge of IT tools	Customer complaints	21	5	-3	3	-15	-45
Suggesting ways of improvement in the process		Operational delays	22	5	3	2	15	30
	Effective audit committee	Student satisfaction	23	5	3	3	15	45
		Staff satisfaction	24	5	3	3	15	45
	Internal audit quality	Customer complaints	25	5	-3	3	-15	-45
Accuracy of finances	Independence	Compliance with internal policies and procedures	26	5	3	3	15	45

Transformational Effects								
Cross-functional competencies	Competence of Internal Auditors	Inter-functional cooperation	27	5	2	3	10	30
	Management support	Better qualification index	28	5	2	3	10	30
Revision of processes and structures	Experience possessed by internal auditors	Staff rotation	29	5	2	3	10	30
Discouraging act of fraud and corruption	Independence	Compliance with internal policies and procedures	30	5	3	3	15	45
	Relationship between internal and external auditors	Capital spending ratio	31	2	3	2	6	12
Sum (a*b)*c								740
Notes: 'i' is a numerical order of the pair (Internal audit effect - PI), 'a' is a PI significance: from no significance (1) to strong significance (5), 'b' is a degree of PI influence introduced by Internal audit effects: no influence (0), weak influence (1), medium influence (2), strong influence (3). 'c' is the indicator of the effect of internal audit effectiveness determinants on the PI: no effect (1), normal effect (2), and strong effect (3)								

Table 4.3: Internal audit effects on performance indicators of human resource processes

		Performance Indicators (PI)						
Internal Audit Effects	Internal Audit Effectiveness Factors	PI Affected	I	a	b	c	a*b	(a*b)*c
Automational Effects								
Better management of processes	Competence of internal auditors	Productivity ratio	1	5	3	3	15	45
		Staff rotation	2	1	3	3	3	9
	Information technology tools	% of trainings for staff	3	3	3	3	9	27
Centralisation of operations	Relationship between internal and external auditors	Labour cost	4	1	2	2	2	4
		Increase in turnover rate	5	3	-3	2	-9	-18
		Effective use of training budget	6	4	2	2	8	16
Effective use of resources		Inter-functional cooperation	7	5	3	3	15	45
	Competence of internal auditors	Productivity ratio	8	5	3	3	15	45
Improvement of financial, operational and compliance status	Sound knowledge of auditee processes	Operational delays	9	5	3	3	15	45
		Staff complains	10	5	-3	3	-15	-45
	Communication between internal and external auditors	Labour cost	11	1	3	2	3	6
	Independence of internal auditors	Compliance with internal policies and procedures	12	5	3	3	15	45
Decreased risk of losing assets	Sound corporate governance	Inter-functional cooperation	13	5	3	2	15	30
		Return on assets	14	1	3	2	3	6
Informational Effects								0
Reliability of financial information	Effective audit committee	Staff retention	15	5	3	3	15	45
		Staff satisfaction	16	5	3	3	15	45
	External audit support for internal audit	Rewarding system improvement	17	1	2	3	2	6
Mitigating errors in the process	Internal audit quality	Operational delays	18	5	3	3	15	45

		Staff retention	19	5	3	3	15	45
		Staff satisfaction	20	5	3	3	15	45
	Knowledge of computerised audit tools	Staff complaints	21	5	-3	3	-15	-45
Suggesting ways of improvement in the process		Operational delays	22	5	3	3	15	45
	Effective audit committee	Staff retention	23	5	3	3	15	45
		Staff satisfaction	24	5	3	3	15	45
	Internal audit quality	Staff complaints	25	5	-3	3	-15	-45
Accuracy of finances	Independence of internal auditors	Compliance with internal policies and procedures	26	5	3	3	15	45
Transformational Effects								0
Cross-functional competencies	Competence of internal auditors	Inter-functional cooperation	27	5	2	3	10	30
	Management support	Better qualification index	28	5	3	3	15	45
Revision of processes and structures	Experience posed by internal auditors	Staff rotation	29	1	2	3	2	6
Discouraging act of fraud and corruption	Independence	Compliance with internal policies and procedures	30	5	3	3	15	45
	Relationship between internal and external auditors	Inter-functional cooperation	31	5	3	2	15	30
Sum (a*b)*c								737
Notes: 'i' is a numerical order of the pair (Internal audit effect - PI), 'a' is a PI significance: from no significance (1) to strong significance (5), 'b' is a degree of PI influence introduced by Internal audit effects: no influence (0), weak influence (1), medium influence (2), strong influence (3). 'c' is the indicator of the effect of internal audit effectiveness determinants on the PI: no effect (1), normal effect (2), and strong effect (3)								

As a basis of comparison, a_i values were kept constant and all b_i values were substituted with constant value, that is, $\sum_{i=1}^n (a_i * d)$ where i, a, b variables have already been mentioned in the formula above while n is the total number of internal audit effects- PI pairs. d is constant, if $b_i \geq 0$ and $c_i > 1$, $d = 6$; if $b_i < 0$ and $c_i = 1$, $d = 0$.

A computation of the $\sum_{i=1}^n (a_i * d)$ resulted in a total of 846 for finance case and 756 for human resource cases.

In order to make a meaningful interpretation of the research results presented, the preceding scores can be altered by changing the denominator to a meaningful number such as 5, 10 or 100. In that way, a five points scale is used, where the

designated degrees of influence of internal auditing and internal auditing factors on institutional performance are organised as: (1) very weak, (2) weak, (3) average, (4) significant, (5) very significant. Total results were calculated as 4 (740/846) = 4,4 for the finance case, and 5 (737/756) = 4,8 for the human resource case.

4.2 Discussion of Results

The advanced evaluation model which combined a process-based and scorecard model in this study has been shown to be suitable to evaluate the effects of internal auditing on performance indicators of an organisation. An advanced evaluation model yielded the extent to which internal auditing affects the performance of the institution. Firstly, the sum of $(a*b)*c$ for every pair of couples was calculated to ascertain the global effect of internal auditing on the performance indicators of the institution studied. Secondly, a_i values were kept constant and all b_i values were substituted with constant value, that is, sum of $(a*d)$ for every pair of couples to ascertain the maximum effect of internal auditing on the performance indicators of the institution studied, which was set as a basis of comparison. To justify the extent of internal audit effects, the advanced evaluation model validated in this study found an 87,47% (740/846) effect on the Finance Department and a 97,49% (737/756) effect on the Human Resource Department. Such results prove the necessity of an expansion of the scope of internal auditors to non-financial processes. Coetzee *et al.* (2010) and Cox (2017) reported on the expansion of internal audits which now include operational audits which are aimed at value adding rather than focusing on organisational finances alone.

The results of this study show that the most significant performance measures or indicators in a public higher education institution are: 'managing operational costs', 'student satisfaction', 'labour improvement', and 'compliance with internal policies and procedures'. This is not surprising since public institutions are service orientated, striving to satisfy the needs of various stakeholders such as students, and it plays a vital role in determining welfare of the nation (Ahmad and Soon 2015). Moreover, compliance with internal policies and procedures has shown to be a very significant performance indicator overall when compared to other performance indicators which were identified as being significant. Such results imply a very important message to the institution studied and other institutions of higher education, that developing and

implementing well-structured policies and procedures in the organisation is of paramount importance. This is the reason that the South African Department of Higher Education and Training (Republic of South Africa, Department of Higher Education and Training 2016) encourages utilisation of the resources of the institution according to the approved university plan. From the literature reviewed, previous researchers such as Sudirman (2012) and Reda (2017) perceived that the common performance measures in a higher education are: graduation rates, student retention, faculty teaching load, throughput rates, and use of technology/distance learning. Therefore, this study expands this knowledge by revealing both local and global measures of performance in the institution by not limiting measures to academic performance measures only.

Internal auditing effects on each performance indicator tested proved to be profound and wide-ranging, highlighting the significance of internal auditing in strengthening internal controls, risk management, and governance structures. The results of this study reveal the following effects as being very influential on the performance indicators tested: better management of processes, improvement of financial, operational and compliance status, suggesting ways of improvement in the process, accuracy of finances, and discouraging acts of fraud and corruption (see Tables 4.2 and 4.3). Such results confirm and strengthen the knowledge base in the field of internal auditing. Previous research in this area has already mentioned the vital role of internal audit in bettering governance structures, improving compliance status, recommending ways of improving operations, enhancing accuracy of finances, and discouraging fraud and corruption particularly in the public sector (Alzeban and Gwilliam 2014; Shamki and Alhajri 2017; Ziniyel, Otoo and Andzie 2018).

Furthermore, the results of this study prove that there are various factors that contribute to the effect of internal auditing practices on performance of the organisation. The factors tested in this study were: competence of internal auditors, use of information technology tools in the audit process, internal audit quality, relationship between internal and external auditors, independence of internal audit activity, and effective audit committee. These results are similar to the findings of research by Salehi (2016); Ali (2018), Erasmus and Coetzee (2018) and Gurama and Mansor (2018) who all emphasise that internal audit effectiveness depends on various factors, therefore, these factors have to be considered when effectiveness of internal auditing is measured.

4.3 Summary

The experimental results of the study were interpreted and discussed in this chapter. Of the performance indicators that were tested in the public higher education studied, results showed that compliance with internal procedures and policies was a very significant performance indicator. Results revealed that internal auditing practices have an effect on the performance of a public higher education institution; the internal auditing effects on performance indicators was rated to be more than 50% as shown in the results above. The next chapter will present a summary, recommendations for future research, and the conclusions of this research.

CHAPTER 5: SUMMARY, FUTURE RESEARCH AND CONCLUSION

This chapter provides a summary of the study with some analysis of the research findings in relation to the study research questions. In addition, the chapter covers recommendations for future research. The recommendations are based on the limitations of this study and the experience of validating the advanced evaluation model in this study. The chapter concludes by sharing the lessons learnt by the researcher throughout the research.

5.1 Summary

The overarching aim of this study was to evaluate the effect of internal auditing practices on the performance of a public higher education institution in order to determine the value added by internal audit to the performance of public higher education institutions. This was accomplished through a series of activities which included identification of internal audit practices and measures of their effectiveness, identifying measures of performance in a public higher education institution, and linking of internal auditing effects to the performance of a public higher education institution through an advanced evaluation model which combined a process-based model and a scorecard model. These activities were systematically implemented to respond to the following research questions (RQs) as outlined at the beginning of the study:

- i. RQ 1: What are the internal audit practices and measures of their effectiveness in an organisation?
- ii. RQ 2: What are the measures of performance in public higher education institutions?
- iii. RQ 3: What methods can be used to investigate the effect of internal audit practices on public higher education institutions?

The set research questions of the study were successfully realised as expected. A scoping literature review approach was used in this study to help identify internal audit best practices currently in use and measures of their effectiveness. Internal audit practices which were found through this approach included the evaluation of risk management, governance, internal controls, adherence to a code of ethics and

standards, compliance with applicable laws and regulations, addition of value to the organisation, and continuous improvement of auditing activities (Lélis and Pinheiro 2012; Ziniyel, Otoo and Andzie 2018; Chang *et al.* 2019). In their study, Ziniyel, Otoo and Andzie (2018) elucidated that good internal audit practices are the foundation for effective management of public funds in the public sector. They found that 58,8% of respondents concurred with the significance of the contribution of internal audit practices to good financial management. Measures of effectiveness identified in the scoping review included implementation of internal audit recommendations, satisfaction of the needs of auditee, reliance placed by external auditors on internal auditor's work, compliance with international standards for the professional practice of internal auditing, and improvement to auditee performance. It was worth noting that there is no approved measure of internal auditing effectiveness, meaning these measures may differ from one researcher to the other depending on the goal that the researcher wants to achieve.

In conjunction with the identification of internal audit practices, the current study reviewed the general effects of internal auditing on the processes of the organisation such as internal controls, risk management and governance processes. Using a process-based model, these effects were then classified into automational, informational, and transformational effects as driven by the advanced evaluation model validated in this study. Next, measurements of performance in a public higher education were identified with the use of a balanced scorecard model which evaluated performance of an institution using financial, customer, learning and innovation, and internal processes performance indicators. With help of a scorecard model, performance was measured considering both financial and non-financial indicators. Some of the performance indicators from the two departments where the data was collected differed slightly due to the fact that the departments which were evaluated included a finance and a non-finance department. The majority of the performance indicators were similar in both departments because both departments operate in one institution with the aim of achieving one overall institutional goal. The other reason could be the fact that a balance set of performance indicators inclusive of both financial and non-financial processes had to be used irrespective the department being a financial or non-financial department. Financial indicators identified were operating costs, effective use of budget, consolidated financial index and cash flows. The non-financial indicators identified were customer (student or staff) satisfaction, staff

turnover rate, operational delays, inter-functional cooperation and compliance with internal policies and procedures.

Various models of evaluating internal auditing effectiveness were also gathered from the review of the literature, and were categorised as causal, process, scorecard, and contingency models. In addition to these models, the necessity of agency theory and institutional theories were discussed in relation to evaluating internal auditing effectiveness. The institutional theory was found applicable in this study because internal and external factors influencing internal auditing effectiveness had to be identified. To give this study the justice it deserves, the advanced evaluation model which combined a process-based and scorecard method was used. The advanced evaluation model was validated in this study by linking effects of internal auditing practices to the performance indicators of a public higher education institution. As demonstrated in this study, such linkage revealed the extent to which internal auditing practices effect the performance of a public higher education institution on both local and global levels.

This study has made the following contributions to the body of knowledge in internal auditing:

- i. Introduced a unique process-based model to evaluate the effects of internal auditing on performance of a higher education institution.
- ii. Measured the performance of an organisation/institution using various performance indicators. With use of a balanced scorecard model, performance measures/indicators of the institution were identified, and the degree of significance was tested, the results of which can bring insight to the management of the institution. In most cases, organisations do not keep performance indicators of their processes as a set of pre-determined targets to trace their performance. Therefore, the use of the model validated in this study encourages organisations to document their performance indicators or to design performance indicators if none exist on both operational and organisational levels. This can help organisations to be more proactive in achieving their objectives.
- iii. Measured the performance of a public higher education institution in South Africa: effect studies of internal audit are normally conducted in a public sector in South Africa, attention has not been given to institutions of higher learning. Institutions of higher education are now operating like corporations

with a set of objectives to achieve while having to address risk. Therefore, it was important to focus on evaluation of the operations of a public higher education institution, particularly one in South Africa.

- iv. The advanced evaluation model which combined process-based and scorecard model employed in this study helped to determine the extent of internal audit effects on performance of the organisation which is usually not seen in other internal auditing evaluation studies. The model validated in this study allows the success of operation of organisational departments within the institution to be compared, even though their areas of operation differ. At the same time, this model can also boost efficiency of internal audit service providers because it offers comparison between expectations of the auditee and what the internal audit service provider can offer.

5.2 Limitations of this Study

The sample of this study was restricted to only two departments of the public higher education institution of education, so the results are not representative of all the departments of the institution, nor of public higher education institutions of education in general, nor of non-public higher education institutions. The findings shed light on appropriate evaluation methods that can be adopted to measure effect of internal auditing practices on the performance of an organisation at both operational and organisational level.

5.3 Future Research

Evaluation studies in the field of internal auditing are scarce compared to other types of systems that organisations invest in, such as external auditing. This can be partly due to the lack of adequate internal audit evaluation methods and tools. This study validated an advanced evaluation model which combined a process-based and a scorecard model to close this gap. However, lack of resources has limited this study to only evaluate internal audit effectiveness in one public higher education institution with a target of two departments. Therefore, future research should endeavour to evaluate internal audit effectiveness in all public institutions of higher education in KwaZulu-Natal and do comparisons accordingly. In addition, for future research, the researcher plans to use the model applied in this study in a different sector such as the

private sector to evaluate internal audit effects that add value and improve performance of organisations as outlined by the international Institute of Internal Auditors. Furthermore, future research should aim at validating this evaluation model in other organisations; goal values of organisational performance indicators should be defined, and then the characteristics of a corresponding internal audit system be determined. In addition, efforts should be focused on widening this research to encompass all public higher education institutions, as well as to include additional factors of internal effectiveness.

5.4 Conclusion

The findings of this study offer significant insight to both suppliers (auditor) of internal auditing services and customers of these services (auditee) regarding the significant internal audit effectiveness factors, the extent of internal audit effects, and the significant performance indicators in a public higher education institution. By utilising the findings of this study, senior management (auditee) will be better positioned to understand the effects of internal auditing on their operations and be able to identify if these effects are weak or strong or in fact absent as perceived by managers in day to day operations of the business. Conclusions drawn can also be used as a tool to identify weaknesses and strengths of the internal audit activity or outsourced audit firm, and can be used by these service providers to prepare the audit plan which can help to close a gap between the services they provide and the expectations of the auditee. Most importantly, findings of this study enable the auditee to identify the extent to which value is added to the local and global performance of the organisation through automational, informational, and transformational effects. As a result, this study has found the effects of internal audit on performance of a public higher education studied as being 87,47% and 97,49% in both finance and non-financial operations respectively, which shows the significance of having operations being internally audited. The advanced evaluation model validated in this study enables the management of the audited department to test the degree of significance of their performance indicators and help identify key performance indicators of the organisation if none are in existence. The findings of this study have revealed compliance with internal policies and procedures to be a very significant performance indicator in the institution that was studied. This in turn should encourage management

of the institution to design internal policies and procedures to ensure a smooth control environment and in so doing exhibit the right tone at the top.

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APPENDICES

APPENDIX A: DATA COLLECTION INSTRUMENT

Effect of Internal Auditing Practices on Performance of a Public Higher Education Institution

Section 1: Demographic Data

1.1. Department

Finance		Human Resources	
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1.2. Age in years (Enter in the box provided)

1.3. Gender

Male		Female	
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1.4. Highest educational level

Higher Certificate		Diploma		Degree		Masters		Other	
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1.5. Position

Clerk		Section manager		Senior Director		Other (please specify)	
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1.6. Years of experience in your position (Enter in the box provided)

Section 2: Institution Performance Indicators

For each of performance indicators below, use the space provided to indicate the level of significance that each indicator may have on your operation. With 1 (insignificant) 5 (very significant)

2.1. Performance indicators

Financial		Customer		Learning and Innovation		Internal Process	
2.1		2.2		2.3		2.4	
2.1.1		2.2.1		2.3.1		2.4.1	
Operating cost or labour cost		Customer satisfaction		Labour improvement		Productivity ratio	
2.1.2		2.2.2		2.3.2		2.4.2	
Better cash flows						Staff rotation	

		Staff retention rate		Percentage of trainings for staff			
2.1.3 Effective use of budget		2.2.3 Staff turnover rate		2.3.3 Qualifications index		2.4.3 Reduction in operating delays	
2.1.4 Consolidated financial index		2.2.4 Student retention rates		2.3.4 Percentage of communication training to reduce customer complains		2.4.4 Inter-functional cooperation	
2.1.5 Capital spending ratio		2.2.5 Percentage of students graduating on time		2.3.5 Rewarding system improvement		2.4.5 Compliance with internal procedures and policies	

Section 3: Effect of Internal Audit on Performance indicators of your institution

Indicate the level of impact of internal auditing on each of the performance indicators. Use 0 (no impact), 1 (Weak effect), 2 (average effect), 3 (strong effect).

3.1. Automation Effects

Conceptual Measure	0	1	2	3
3.1.1 Better management of processes increase the productivity ratio				
3.1.2 Better management of processes allow for staff rotation				
3.1.3 Better management of processes result to labour improvement				
3.1.4 Centralisation of operations (eg payments) result to operational cost and labour cost				
3.1.5 Centralisation of operations allow for a better cash flow				
3.1.6 Centralisation of operations result to better an effective use of budget				
3.1.7 Encouraging effective use of resources increase return on assets				
3.1.8 Encouraging effective use of resources increase the productivity ratio				
3.1.9 Improvement in financial, operational and compliance status in the process reduces operational delays				
3.1.10 Improvement in financial, operational and compliance status in the process reduces operational costs				
3.1.11 Improvement in financial, operational and compliance status in the process increases the level of adherence to internal approved policies and procedures				
3.1.12 A decreased risk of losing assets decreases capital spending ratio				
3.1.13 A decreased risk of losing assets increase return on assets				

3.2. Informational Effects

Conceptual Measure	0	1	2	3
3.2.1 Reliability of financial information boost stakeholder satisfaction eg employees, government and students				
3.2.2 Reliability of financial information results to an increased financial index				
3.2.3 Mitigating errors in the process and suggesting ways of improvement reduces the level of operational delays				
3.2.4 Mitigating errors in the process and suggesting ways of improvement increases the level student or staff satisfaction				
3.2.5 Accuracy of finances according to approved standards increase the level of compliance by the organisation				

3.3. Transformational Effects

Conceptual Measure	0	1	2	3
3.3.1 Cross-functional competencies encourage inter-functional cooperation				
3.3.2 Cross functional competencies result to better qualifications index				
3.3.3 Revision of process and structures encourages staff rotation in the organisation				
3.3.4 Discouraging the act of fraud and corruption foster compliance with internal approved policies and procedures				
3.3.5 Discouraging the act of fraud and corruption effects capital spending ratio positively				

Section 4: Effect of Internal Audit Effectiveness Factors on your Institution Performance Indicators

Indicate the level of effect of internal audit effectiveness factors on each of the performance indicators. Use options 1(no effect), 2(normal effect), and 3(strong effect)

4.1. Competence of Internal Auditors

Conceptual Measure	1	2	3
4.1.1 Internal auditors possess enough experience to understand the systems of the institution.			
4.1.2 The internal audit staff number and their skill match the scope of institution internal operations.			
4.1.3 The internal audit staffs have the appropriate and relevant education in auditing that allows them to audit all systems of the institution (financial, operational, and computerised).			
4.1.5 The work of internal audit is performed with modern technology that uses computerised data tools			

4.2. Independence of Internal Audit Function

Conceptual Measure	1	2	3
4.2.1 Internal audit staff have free access to all departments and workers in the institution			
4.2.2 Internal audit participates in the development of the institution processes			
4.2.3 Internal auditors have impartial unbiased attitude when conducting their work			
4.2.4 Internal audit staff does not perform non-audit activities			

4.3. Management Support

Conceptual Measure	1	2	3
4.3.1 Senior management supports internal audit to perform its duties and responsibilities			
4.3.2 Senior management are involved in the internal audit plan			
4.3.3 Internal audit provides senior management with sufficient, reliable and relevant reports about the work they perform, and recommendations made			
4.3.4 Internal audit department is reasonably paid to successfully carry out its duties and responsibilities			

4.4. Internal Audit Quality

Conceptual Measure	1	2	3
4.4.1 Established objectives of internal audit are accomplished			
4.4.2 Work of Internal audit is efficiently performed			
4.4.3 Internal audit findings are correctly justified			
4.4.4 Internal audit reports are accurate			
4.4.5 There is communication between internal and external auditors, as a result there is no duplication of work			

4.5. Relationship Between Internal and External Auditors

Conceptual Measure	1	2	3
4.5.1 External auditors are friendly and supportive			
4.5.2 External auditors have good attitude toward internal auditors			
4.5.3 External auditors discuss their plans with internal auditors			
4.5.4 External auditors rely on internal audit work and reports			
4.5.5 External auditors and internal auditors share their working papers			

4.6. Information Technology Tools

Conceptual Measure	1	2	3
4.6.1 Internal auditors possess enough knowledge of available technology-based audit techniques to perform their tasks			
4.6.2 Computerised audit tools speed up the internal audit process			
4.6.3 Computerised audit tools increase the level of productivity of internal auditors			

4.7. Effective Audit Committee

Conceptual Measure	1	2	3
4.7.1 Audit committee approve the appointment and removal of internal audit providers. Eg Audit firm			
4.7.2 Audit Committee and internal auditors are in mutual relationship			
4.7.3 Audit committee support good governance within the institution			
4.7.4 Audit committee strengthen risk management and internal controls through internal audit			

DONE_THANK YOU

APPENDIX B: LETTER OF INFORMATION



LETTER OF INFORMATION

Title of the Research Study: Effect of Internal Auditing Practices on Performance of a Public Higher Education Institution

Principal Investigator/s/researcher: Mvelo Siyaya, Master of Accounting: Internal Auditing

Co-Investigator/s/supervisor/s: Prof OO Olugbara (PhD) and Dr LF Jali (DBA)

Brief Introduction and Purpose of the Study: Internal auditing is designed to add value and improve operational and overall performance of organisations. Existing evaluation studies of internal auditing have identified a gap in models and tools to evaluate value addition of internal auditing to organisational processes. To close this gap, this study will evaluate the effect of internal auditing practices on the operational and overall performance of the organisation, with attention given to the institution of higher education.

Outline of the Procedures: You are kindly requested to complete the questionnaire as honestly and fully as you are able. Incomplete forms cannot be included in the survey. Your answers will be anonymous and the findings aggregated. Permission to conduct this study was requested from Research Committee of University.

Risks or Discomforts to the Participant: There are no risks to participant.

Benefits: You will receive an insight on the important factors that influence the internal audit activities and how effective these factors are. The benefits of the researcher will be research publications in both conference proceedings and accredited journals.

Reason/s why the Participant May Be Withdrawn from the Study: At any time, you may decide to withdraw from the study without any negative results to yourself.

Remuneration: No remuneration/incentives to be offered to you for your participation.

Costs of the Study: You will not be liable for any of the costs of this study.

Confidentiality: All information provided by you will remain confidential. The statistician, the researcher, supervisor and co-supervisor will be the only people to be given access to the information.

Research-related Injury: This study will not cause any harm to you.

Persons to Contact in the Event of Any Problems or Queries:

Please contact me on 073 717 4376, my supervisor Prof OO Olugbara on 031-373 5525, my co-supervisor Dr LF Jali on 031-373 6712 or the Institutional Research Ethics Administrator on 031 373 2375. Complaints can be reported to the DVC: Research, Innovation and Engagement Prof S Moyo on 031 373 2577 or moyos@dut.ac.za.

APPENDIX C: CONSENT FORM



CONSENT FORM

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, Mvelo Siyaya, about the nature, conduct, benefits and risks of this study,
- I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

Full Name of Participant

Date Right

Time

Signature /

Thumbprint

I, Mvelo Siyaya

(name of researcher) herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

Full Name of Researcher

Date

Signature

Full Name of Witness (If applicable)

Date

Signature

Full Name of Legal Guardian (If applicable) Date

Signature

APPENDIX D: EDITING CERTIFICATE

Anita Kromberg Editing Services
Freelance academic editor
Associate member of the Professional Editors' Guild of South Africa

P O Box 30043, Mayville, Durban 4058

kromberga@gmail.com

0824982357

EDITING CERTIFICATE

17 August 2020

Mvelo Siyaya

Effect of Internal Auditing Practices on Performance of a Public Higher Education Institution

I confirm that I have edited the thesis and the references for clarity, language and layout. I am a freelance editor specialising in proofreading and editing academic documents.

I returned the Word document to the student with track changes, so the correct implementation of the changes in the text and references is the responsibility of the student.

Anita Kromberg

My qualifications are:

BA (Psychology and Sociology), University of Pretoria, 1977

Advanced University Diploma in Adult Education (AUDIS), University of KwaZulu-Natal, 1985

Advanced University Diploma in Information Science (AUDAE), University of KwaZulu-Natal, 1995