THE ROLE OF ENTERPRISE RESOURCE PLANNING SYSTEMS IN CONTINUOUS AUDITING OF A SELECTED ORGANIZATION IN THE WESTERN CAPE, SOUTH AFRICA

By

Anyanwu Ogechi
Student No: 210027371

Thesis submitted in fulfilment of the requirements for the degree
Master of Technology in Business Information Systems
in the Faculty of Business and Management Science
at the Cape Peninsula University of Technology

SUPERVISOR: MICHAEL TWUM-DARKO (PHD)
CO-SUPERVISOR: JERRY ANSEN

Cape Town
March 2018

Declaration

I, Ogechi Anyanwu, declare that the contents of this dissertation/thesis represent my own unaided work, and that the dissertation/thesis has not previously been submitted for academic examination towards any qualification. Furthermore, it represents my own opinions and not necessarily those of the Cape Peninsula University of Technology.

Signed: Date:

ABSTRACT

The thesis aimed at exploring the role Enterprise Resource Planning (ERP) Systems play in an organization's continuous auditing practices. Continuous auditing encourages innovation and improves the practice of traditional auditing through the use of automation and computerisation. Auditing specialists and researchers have begun to adopt a technology driven process as an approach to back up real time assurance. The rationale of the study is drawn from previous research where the findings argue that organizations employ the use of ERP systems because it enables seamless access to information and automation, which makes monitoring of controls easier. The study used Structuration Theory (ST) as the underpinning theory and drew on the concept of duality of technology (i.e., Enactment of Technology-in-Practice) as a lens to comprehend and deduced the social phenomenon of continuous auditing using ERP system. This research study investigated this social phenomenon and how it had influenced performance auditing of an organization. The study applied interpretivism as a research paradigm and as such adopted a qualitative approach where semi-structured interviews were used to tease out the research objectives and questions. The outcome of the research validated a conceptual framework which has led to a proposed general framework for practicing continuous auditing using ERP system. All interviews data collected and accurately captured with informed consent were subject to the approval of the selected organization. This was not to violate the organization's privacy and confidentiality policies. It did not reveal any information that could potentially adversely affect the reputation of the organization or reveal private information to its competitors.

Keywords: Continuous auditing, internal controls, business processes, Enterprise Resource Planning, Information systems,

Acknowledgements

I wish to thank:

- God for granting me the grace to write this thesis.

- My family for supporting me through this journey.

- My supervisors Dr Michael Twum-Darko and Mr Jerry Ansen for guiding me through this journey.

- My fellow post graduate colleagues and friends, thank you for making this journey memorable

- Management team at the City of Cape Town for agreeing to participate in this research

Dedication

I dedicate my dissertation work to my family and many friends.

Table of Contents

List of Figures

List of Tables

Glossary

Terms/Abbreviations	Definitions
ERP	Enterprise Resource Planning
CA	Continuous Auditing
CAD-PM	Continuous-audit-based performance management
ETIP	Enactment of Technology-in-Practice
ST	Structuration Theory
SCM	Supply Chain Management
PLM	Product Life Cycle Management
CRM	Customer Relationship Management

CHAPTER 1

INTRODUCTION

1.1 Introduction

According to (Coderre, 2005:1) continuous auditing is a process which automatically performs control and risks assessment on a more frequent basis. They are designed to repeatedly check errors and verify data in real time. The necessity for continuous auditing, and capability to deliver, has slowly become an important factor in business information. Today, the concept of continuous auditing has become a key element in many internal audit departments' risk monitoring strategies. In addition, the consideration of continuous auditing as a device to enhance external auditing has grown (Kuhn & Sutton, 2010:91). Continuous auditing is important to ensure that controls and risk assessments are checked automatically to meet the objectives of the organization. Automating internal auditing processes has become attractive to organisations as it helps to diminish cost implications and increase the effectiveness and efficiency of the audit (Malaescu & Sutton, 2013:5).

Hunton, Lippincott, and Reck (2003) cited in Wieder, Booth, Zoltan, Matolcsy & Ossimitz (2006:13) explain that by comparing return on assets, return on investments and asset turnover for ERP adopters and non-adopters, shows an indication on the impact of adopting ERP in an organisation as well as the effect the system has on the general performance of the firm. There is no major indication of a performance improvement for ERP adopters. However, the financial performance of adopters has not reduced although the performance of non-adopters has reduced during the same period. Hunton, Lippincott, & Reck (2003) cited in Wieder, Booth, Zoltan, Matolcsy & Ossimitz (2006:13) further argue that the continuous auditing process modernizes and improves the manual auditing process by using technology and automation. Considering the entire number of transactions, monitoring and testing will improve the effectiveness of an audit, which will inevitably lead to better performance due to the likelihood, inaccuracies which are material, oversights, and

fraud may be discovered. (Njeru, 2014:206) argues that companies in the public sector that wish to obtain overall efficiency have chosen to merge their functions into a singular platform and that platform is ERP. O'Brien and Marakas (2009) Cited in Njeru (2014:206). The ERP system is the technological support system of e-business; it is an enterprise framework for transactions which is connected to various operations of a business (Chan & Vasarhelyi, 2011:157).

Vliet, (2011:6) argues that ERP is deemed as a system that is implemented to improve the performance of an organization. The primary role of an ERP is to support business activities. The system is created to incorporate into one system, all departmental units and functions within the organisation.

The research argues that lack of continuous auditing in many organisations has resulted in unproductive use of organisations' time and resource due to increase in data management systems. Investigation revealed that there has been little research conducted to determine the role of ERPs Implementation for continuous auditing. ERP as a business or corporate strategy is different from ERP systems where the latter is a means of implementing the ERP. Therefore, the integration of these systems should be investigated in other to adequately understand how they impact organisation's performance.

Continuous Auditing is regularly viewed as part of many techniques used by Internal Auditing to deliver reasonable assurance that the business operational controls are designed properly, designed and working, as it should. A more current interpretation is that continuous auditing is an application that automates processes and is used to provide assurance over financial or operational controls. (French, 2011:2). This research study investigated a social phenomenon; the role of ERP in continuous auditing and how it influences performance management in an organization. A selected organization in Cape Town was used as a case study to tease out this phenomenon. An interpretive case study approach was employed to support multiple data collection methods. The research makes use of structuration theory and especially, Enactment of Technology-in-Practice (Orlikowski 2000) as the underpinning theory. Enactment of Technology-in-practice (ETiP) which was derived from Giddens' (1984) concept of duality of structure and action will be used as a

guide to comprehend and construe the issues influencing performance management from the perspective of continuous auditing. The envisaged research outcome was a framework to improve performance management of a selected organization in Cape Town.

1.1.2 Terminology Used

The research study used terminology, which might mean differently to other readers and as such need to be explained

Continuous Auditing: The use of audit procedures from constant evaluation of controls to continuous risk assessments on frequently or on a regularly. Technology is an important factor in the continuous audit process as it assists in automating examination of trends and pattern analysis of key numeric fields (Coderre, 2007:1).

Performance Audit: An independent auditing procedure used to evaluate the measures put in place by management to ensure that allocated resources are economically purchased and utilised efficiently and effectively. Performance auditing is described as a system of objectively assessing the activities or processes of a government or program in other to determine its effectiveness, economy, or efficiency. The outcome of the assessment is provided to managers, ministers and legislations along with recommendations for improvements due to their responsibility for passing the recommendations and providing accountability for correction (Morgan and Waring, 2007).

Enterprise Resource Planning: This is defined as an integrated software solution that extends across series of business processes which allows companies the ability to have a general or complete assessment of the business enterprise (Ehie & Madsen, 2005:545). The improvement and constant use of ERP systems provides the organisation with the essential infrastructure which is of importance in order to achieve effective development of assurance function. (Kuhn & Sutton, 2010:109).

Performance Management: The process by which managers and employee team up to organise, monitor and review the organisation objectives, work objectives and general contribution to the organisation is performance management. Performance management has become more than just an annual performance review; it is the

continuous process of laying out objectives, evaluating progress and providing regular training and feedback to ensure that employees are meeting their objectives and career goals. (Council.ca, 2015:1)

Internal Controls: Internal controls are developed and put in place to help management have control over general activities and operations of the organisation in order to achieve organisational objectives. (Njeru, 2014:208).

1.3 Research Rationale

1.3.1 Background

The ERP software guarantees organisations vital benefits which are: reduction of costs; less inventories; high productivity; enhancing operational efficiency; reaching or achieving competitive advantage; and advancing the reorganization of internal resources (May, Dhillon and Calderia, 2013: 98). One major objective of ERP systems planning is that it helps minimize costs. The decrease of cost is repeatedly highlighted as the most important objective in adopting ERP (May et al., 2013:101).

The implementation of an ERP system does not only deal with the change of hardware and /or software systems, rather it involves changing the organisation to attain an advanced level of performance through improved and modernized business process. Strategic conception and successful execution of the ERP system can transform the way organisations operate their business for the better (Ehie & Madsen, 2005:555).

Ehie & Madsen (2005:555) further argue that successful implementation of ERP drives "continuous monitoring and self-diagnosis throughout the implementation process." Continuous assurance, as stated by (Alles, 2008:128) is defined as the use of current computerized systems rather than traditional systems that is used to perform audits. Kuhn & Sutton (2010:94) classify continuous auditing as a different phase towards the development of auditing from manual to computerized systems to automated auditing systems. Davenport and Short, (1990) cited in Alles et al., (2006:138) state that in other to provide assurance in today's business environment, a comprehensive understanding of the perpetual variations in the way today's

businesses perform their activities is important. A crucial look at businesses in the last two decades entails deconstruction of a business into its essential business processes. A business process (BP) is "a set of logically linked assignments which are performed in order to reach a definite business outcome.

The experience with ERP implementations shows that the road toward successful large-scale implementations of continuous auditing will be a difficult one. As continuous auditing software and process develops and becomes consistent over time, it will probably take the route of ERP in integrating best business practices and industry-specific alterations of their packages. This will generate an opportunity for the firms to revise their audit programs at the time of continuous auditing implementation (Alles, 2008:206). This research is to ascertain if indeed ERP systems facilitate continuous auditing.

The main objective therefore was to explore the role that ERP plays in supporting continuous auditing to improve performance management. To address the main objective, the following sub-objectives were derived:

- To investigate the factors affecting continuous auditing;
- Investigate how ERP systems' implementation can influence continuous auditing in an organization; and
- Recommend continuous auditing framework of performance management for organizations.

1.3.2 Problem Statement

Lack of ERP has led to insufficient continuous auditing which have created performance auditing challenges in many organisations in South Africa. Hunton, Lippincott, and Reck (2003) cited in Wieder et al (2006:13) state that firms that adopt ERP in comparison to firms that do not adopt ERP does not signify better performance. However, the financial performance of adopters did not reduce, while the performance of non-adopters has declined during the same period. Through the use of technology and automation, continuous auditing transforms and advances the practice of traditional auditing. Practitioners and researchers are starting to accept of

a technology driven process as an approach to back up real time assurance. In continuous auditing environments, mistakes over a restricted set of processes rarely occur in information systems. This influences an auditors' decision to investigate irregularities that deal with any audit procedures requiring judgement and professional uncertainties than executing monotonous audit procedures (Pairat & Jungthirapanich, 2005:28). Dlodlo (2011:1) explains that ERP grant visibility of information throughout the enterprise and facilitates smooth access to information.

The implementation of information technology and systems has enhanced business operations. Considering the entire number of transactions to be monitored and tested, information technology improves the effectiveness of an audit. This reduces the occurrence of material misstatements and omissions, thus leading to better performance. (Njeru, 2014:206) argues that companies in the public sector that wish to be efficient have opted to integrate their functions into a singular platform, which is the ERP system. O'Brien and Marakas (2009) Cited in Njeru., (2014:206) ERP is the technological backbone of e-business, an enterprise transaction framework with links into sales, order processing, inventory management and control, production and distribution planning, and finance (Chan & Vasarhelyi, 2011:157). Vliet, (2011:6) argues that ERP is deemed as a system that is implemented to improve the performance of an organization. The primary role of an ERP is to support business activities. It is designed to integrate all departmental units and functions within an organisation onto a single computer system that can serve each department's particular needs.

Therefore, the integration of these systems should be investigated in order to adequately understand how they impact on organisations performance.

1.3.3 Aim and Objectives

Given the problem statement, the aim of the study was to explore the role of ERP on continuous auditing and how it could influence performance audit in organization e.g., a Municipality. To address the aim, the main objective is to investigate what had contributed to the lack of enterprise resource planning leading to insufficient continuous auditing and creating performance auditing challenges in an organisation.

1.3.4 Research Questions

The following research questions have been derived to address the objective of the research

Research question	How can continuous auditing improve performance management?	
Sub-questions	Methods	Objectives
What are the effects of ERP on continuous auditing?	• Interview • Literature review	To identify the importance of ERP in continuous auditing.
How does the use of ERP in continuous auditing influence business operations?	• Interview • Observation	To determine how the use of ERP in continuous auditing influences business operations
How does continuous auditing influence performance management?	• Literature review • Interviews	To determine how the use of ERP in continuous auditing influences performance management

1.4   Overview of Research Design

The research design, which is discussed in Chapter 4 of this thesis, is based on the details of research philosophy (interpretivism), research perspective (qualitative research), and data collection technique and analysis using structuration theory as a guide to analysis of findings.

1. 5 Delineation of Research

Due to the fact that the size of the targeted population is unknown and this research study made use of purposive sampling, all respondents adhered to a specific set of rules in order to render their responses as valid:

- The study focused specifically on one organisation as a single case study in South Africa.
- Respondents were limited to IT Audit managerial staff that work with the ERP system in the city of Cape Town.
- The study focused on the IT Audit department/function of the respective organizations.

1. 6 Ethical Considerations

The ethical consideration related to this project was largely located in data collection. All data collected via interviews was subject to the approval of the selected organizations to ensure that it did not violate the organizations' privacy and confidentiality policies and did not reveal any information that could potentially adversely affect the reputation of the organization or reveal private information to its competitors. The anonymity of the interviewees was treated as confidential. The interviews were subject to review by respondents to ensure that their responses were captured accurately. The statements during the interviews were presented as is and were not changed in any way to suit the study or affected the results. Interpretations of the study were based on the concept of structuration theory.

1. 7 Research Contribution

At the end of this research, factors influencing continuous auditing with ERP systems in an organization were analysed. It provided a general framework that can improve the existing knowledge of continuous auditing in an organisation. The research contributed to the existing body of knowledge on continuous auditing in an organisation and ERP systems in general; it also offered new insights on the effect of continuous auditing assisted by ERP systems. The result of the study was presented as a general framework to guide effective continuous auditing. The application of structuration theory was used to tease out auditing and performance management. Therefore this study provided new insights on how structuration theory can be applied to understand and interpret socio technical processes in an organisation. This research will be useful to organizations, managers and any interested person.

1.8 Dissertation Overview

The dissertation consists of five chapters, and these chapters are briefly described as follows:

Chapter 1: Introduction

This chapter introduces the dissertation by describing the background of the research, the terminology used, and the research rationale. The research problem, research questions, and objectives of the research are further outlined, and the research methodology, scope of the research, and an overview of the research layout are given.

Chapter 2: Literature review

The chapter introduces the relevant literature and the role ERP plays in enhancing continuous auditing. A conceptual framework was developed based on the literature reviewed and was used to direct the data collection and analysis. The chapter further examines literature with regard to continuous auditing, the standards that govern IT audit process, ERP and how it influences continuous auditing processes. In this chapter, continuous auditing processes were discussed.

Chapter 3: Underpinning Theory

This chapter introduces the theory, which will be used as a guide to comprehend and construe the problem. A conceptual framework will be developed using this theory as a guide to tease out the factors influencing performance management, internal controls, business process and compliance with company policies and procedures.

Chapter 4: Research approach

The chapter introduces the methodologies considered for the study and discusses the underpinning theory. It further introduces the City of Cape Town and the University of Technology chosen for the fieldwork in the case study used for the research.

Chapter 5: Analysis and interpretation of data

This chapter examines and interprets data collected through the interviews and questionnaires. It discusses possible solutions in respect of the findings. The findings are used to propose a general framework to help govern IT audit process using ERP and to recommend continuous audit practices.

Chapter 6: Recommendations and conclusions

This chapter provides a summary of the research findings, possible recommendations for continuous auditing practices, and outlines further studies in terms of future work, as well as conclusions.

1.9 Chapter Summary

Table 1 .1 Summary of Chapter 1

Research Study Scope	
1. Introduction of the chapter	Introduction to the main items of this research was done in this chapter. The researcher reviewed the concept of continuous auditing and ERP systems in order to gain preliminary knowledge of the research environment.
2. Background of the research problem	The origin of the research problem was provided.
3. Research	These were discussed in 1.3

	Rationale/Objective	
4.	Statement of the research problem	Based on the study of Pairat & Jungthirapanich (2005:28) and subsequent reported evidence, the research problem was highlighted: The primary role of an ERP is to support business activities. It is created to have the ability to incorporate each departmental section and units throughout the organisation. The aim then is to investigate the role of continuous auditing and how it influences performance management using Enterprise Resource Planning (ERP) in a selected organization.
5.	Research questions	These were discussed in 1.5
6.	Overview of research design	These were discussed in 1.6
7.	Research Delineation	These were discussed in 1.7
8.	Ethical Considerations	These were discussed in 1.8
9.	Research contribution	These were discussed in 1.9
10.	Dissertation overview	These were discussed in 1.10

Chapter 2

LITERATURE REVIEW

2.1 Introduction

In the previous chapter, the perception that ERP systems support business activities and can integrate all departments and functions across a company which could improve business processes and performance was highlighted. To confirm this perception, the researcher will investigate the role of continuous auditing and how it influences performance management using ERP in an organization. In this chapter, relevant and existing literature has been reviewed to establish whether previous research of this kind has been carried out. Although, a study of the risk in implementing ERP in an organisation has been carried out, there is inadequate research information on ERP implementation with continuous auditing and the influence ERP systems have on internal auditors' capacity to manage risks (Saharia et al., 2008:579). Literature review was conducted on continuous auditing and ERP systems so as to understand the phenomenon under study.

According to Alles (2008:195) improving on the work of Vasarhelyi and Halper (1991), this paper shows that the concept of continuous auditing has been fairly implemented and the results evidently revealed that the dire point of continuous auditing (CA) is to make auditing move nearer to the day to day processes, and away from the traditional retrospective annual inspection of financial statements.

A. Elragal & M. Al-Serafi (2011:16) study points out that some organisations' have been able to attain substantial benefit after the adoption of ERP. However, some studies indicate that only few benefits have been achieved after adoption. The identified gaps stemming from the literature reviewed and the understanding thereof led to the development of a proposed conceptual framework as mentioned in chapter 3.

This chapter also provides a general discussion and understanding about the concept and purpose of continuous auditing, ERP systems and business processes and how the conceptual framework helped frame the data collection, analysis

instrument and interpretation. The subsequent section begins with the review of literature about the need to adopt continuous auditing in an organisation and integrating the process with ERP systems. This is in order to provide the reader with solid foundations for review of literature.

2.2 Internal Audit Function

2.2.1 Internal Control

Internal auditing is an independent, objective assurance and consulting activity designed to add value and improve an organization'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 (Coetzee et al., 2012:4). (Shamsuddin & Johari (2014:303) extracting from the study of Ali et.al (2012) and Arel, (2006) point out that the internal audit function exists to assist members of an organization to advance the performance of their activities, they further explain that the internal audit function has become more important due to the fact that an effective internal audit function is considered as a method used to solve the problem of system breakdown that is used for business reporting, internal control and ethical behaviour.

Shamsuddin & Johari (2014:303) remarks that the major role and responsibility of an internal audit function is to assess and deliver reasonable assurance that control, risk management and governance systems are operational as planned and will assist the organisation in achieving their set objectives and goals. The internal audit function also involves reporting risk management issues and internal control shortages that have been identified directly to the audit committee as well as provide recommendations which will improve the organisation's operations, to achieve both efficient and effective performance, and maintain an open communication line with management and the audit committee.

According to Coetzee, du Bruyn, Fourie & Plant (2012:21) with the development of computerised systems, there have been swift changes in the method and speed with which transactions are captured and processed. With the use of electronics in processing transactions, it is complicated for the auditors to observe the audit trail as

the audit trail no longer exist however; most transactions are executed without any human intervention.

Shamsuddin & Johari (2014:1) study on internal controls explains that the typical focus of internal auditing is on good internal control and compliance towards policies and rules to certify that the organization is operated in effective manner and therefore able to achieve its objectives. Drawing from the knowledge of Ali et al (2012), Shamsuddin & Johari (2014:1) additionally explain that the theoretical aspect of the internal audit function exists to assist members of an organization to improve the performance of their activities. Drawing from (committee of sponsoring organisations) COSO's 2013 framework, Mcnally (2013:3,4) argues that major theories concerning internal control are timeless. He further argued that the organisation's board of directors, management, and other personnel could also affect the internal control process. The internal control process is developed to assist in ensuring the reassurance regarding achieving set goals, which relates to the organisations operating process, production of reports, and complying with laws and regulations is provided. Shamsuddin & Johari (2014:302) emphasise that internal control system consist of policies and procedures, which are developed by management to manage risk and provide reasonable assurance that the organization's objective, would be achieved. Arens et.al (2008) cited in Shamsuddin & Johari (2014:5) contend that the objectives of the internal control system are to ensure that the financial report produced for the year is reliable, all operations are functioning efficiently and effectively as well as compliance with law and regulations. Internal control system comprises of five important features, which include: control environment, risk assessment, control activities, information and communication and monitoring.

According to Njeri, (2014:7) control environment is the basis for all the other constituents of internal control. Control environment involves ethical values and integrity of management responsible for creating, administering and monitoring the controls, management and employee commitment and competence in performing duties assigned, audit committees, management philosophy and operational technique as well as organizational structure. Njeri (2014:7) further explains risk as the process of carefully assessing factors that could possibly affect the achievement

of the organisation's objectives by systematically analysing and identifying risks that are applicable to the organisation and associated with achieving the objectives of the organization are properly carried out.

Policies and procedural guidelines should be properly and accurately documented to help determine how the control activities are to be executed, while monitoring of controls process is overseeing that internal controls are structured to be effective and efficient. This helps also to determine the functional productivity of the system over time. Millichamp (1999) study on internal control systems, as further explained by Njeri, (2014:6)for smooth running and controlling of a business, operational and financial reports are essential. Therefore, the adoption of internal control and information system is crucial for firms that produce such reports. The availability of a functional communication system need be present, with open communication channels for easy flow of information throughout the organization.

2.2.2 Risk Assessment

A risk according to Miles & Jazaie (2011:6) is the likelihood of an event occurring which will affect or could interrupt the organisation from achieving their objectives. Vacca (2017:1) drawing from The Committee of Sponsoring Organizations of the Treadway Commission (COSO) define "risk" as any event that can keep an organization from achieving its objectives using the COSO model as a guideline, Vacca (2017:1) notes that there are four major areas in which risk is viewed. These areas include: operational risk which involves processes and procedures; financial risk; data developing into internal/external statements; regulatory risk which is centred on federal, state, local, organizational policy, and reputation (institutional).

PriceWaterHouseCoopers (2003:7) argue that it is important for internal audit to develop a systematic and efficient means to analyse risk. By performing risk assessment, the auditor is granted the opportunity to evaluate the influence of prospective events on achieving business objectives. The process of risk assessment starts with identifying the audit environment. Understanding the organisations business model and key business objectives is essential. In order to

understand the organisation's business model, the auditor will have to communicate with stakeholders and their understanding of the audit environment, key business objectives and risks inherent in the achievement of those objectives. Nair, Purohit & Choudhary (2014:551) contend the risk identification has a role to play in the success of risk management.

Management should identify organisations inherent risks, which are risks that exist in an environment without the benefit of internal controls, and residual risks, which are risks that exist after putting into consideration the controls which management has implemented to mitigate or transfer the risk. Asemeit, (2014:8) explain that the occurrence and impact of disruptions (internal or external) to business activates due to risk events differ significantly across various firms depending on the nature of activities and the complexity or simplicity of internal risk measurement standards and control mechanisms.

According to Daujotaitė (2013:221) the risk-assessment based approach has increasingly become an important aspect for carrying out the supervision of institutional performance as well as their valuation and audit. Daujotaitė (2013:221) further affirms that the role that audit and auditors play is essential in the life of the society, the process of performing statutory audit is essentially perceived as performing the functions of a supervisory authority. Drawing from the green paper Audit policy of the European Commission (2010), Daujotaitė (2013:221) emphasizes that a key contributor to financial stability should be performing an audit, alongside supervision and corporate governance, this system helps provide assurance on the accuracy and reliability of the financial health of the organisation. The risk of misstatement should be reduced by this assurance, reducing the costs of failure, which would otherwise affect the organization's stakeholders, as well as by the broader society.
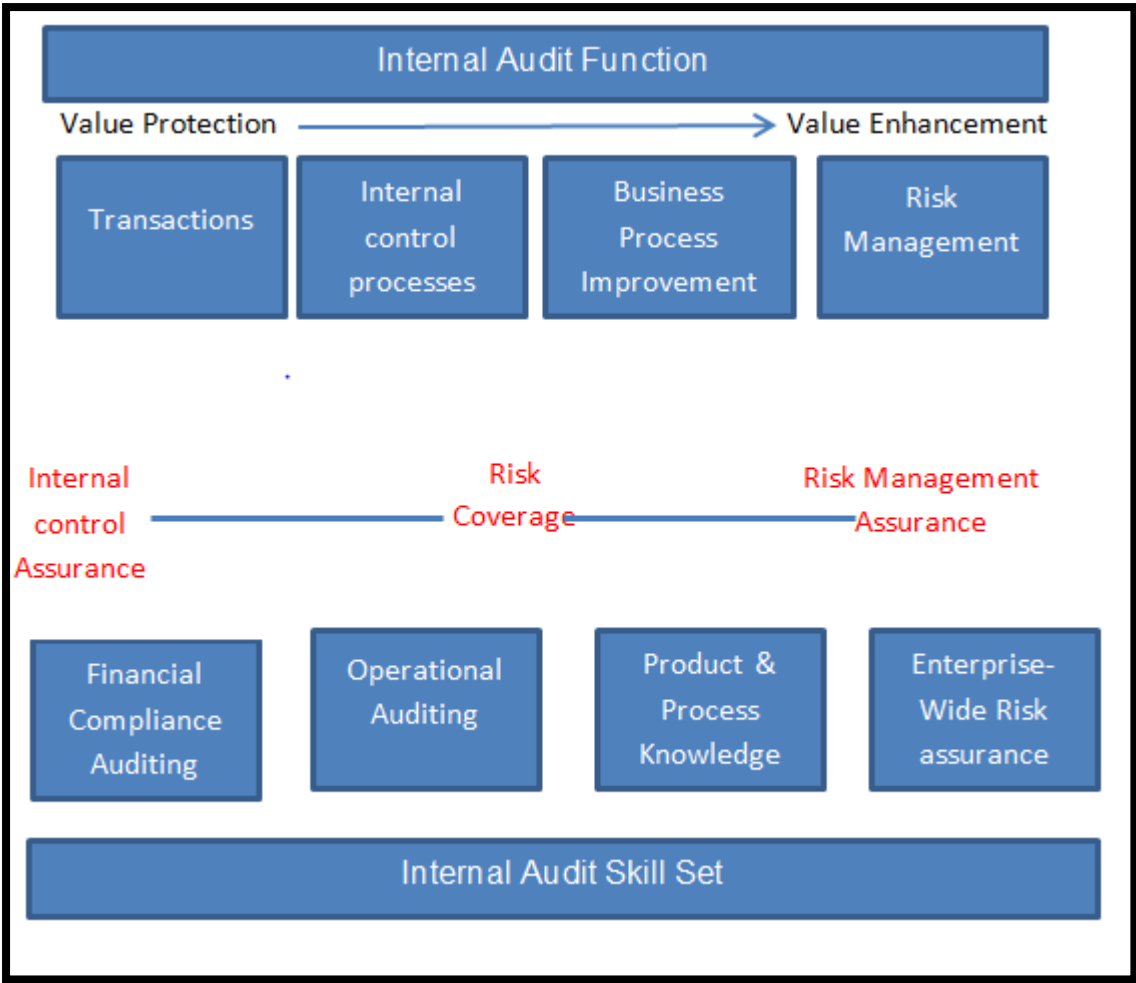
Figure 2.1: The Internal Audit Function

Source: Price Water House Coopers (2013)

2.3 Continuous Audit Process

Rezaee et al (2001:153) indicates that it has become possible for organisations to conduct their business transactions electronically and prepare their financial statements on an online and real-time system due to increasing Information Technologies. Real-time accounting (RTA) systems produces major financial information and audit proof automatically. Moorthy, Seetharaman, Mohamed, Gopalan & Lee et al (2011:3530) expanded on David Coderee (1993) explanation on the effect computer assisted audit tools and techniques (CAATT) based programs has in automating certain audit function in the organization. With the assistance of CAATT based applications, auditors now have the ability to identify high-risk, high-materiality sites as well as generating transaction lists for manual review. This helps to reduce the risks associated with high-risk materials and promoted the internal control process.

Rezaee et al (2001:151) further argue that the modification in business process that eliminates the use of traditional method to obtain information requires establishing new audit measures to conduct financial audit. The independent auditor will be required to employ CA when majority of the information needed is available only in electronic form under the RTA system; this will automatically invoke change in certain audit procedures. Malaescu & Sutton, (2013:12) on knowledge gained from the Conceptual Framework for Financial Reporting Accounting & Board, (2010) and COSO framework Mcnally, (2013) explain that in a continuous audit environment, financial information and controls associated with it are audited on a continuous (real time) basis, which increases both the timeliness and verifiability of the financial data as any inconsistencies are reported and are fixed as they are detected, in accordance with the effective internal control principle of information and communication. (John, 2009) explains that the efficiency formed from embracing technology and implementing continuous auditing assists in the completion of the internal audit plan.

The key steps to the implementation of continuous auditing as emphasized by de Aquino, (2008) are listed and explained below:

2.3.1 Establishing priority areas:

The organisations audit plan and risk management program should include a decision making process to decide which organizational areas should be audited. Certain areas should be considered when determining significant areas to continuously audit, such as: identifying and breaking down the risky areas of critical business processes that need to be audited. Estimate if the cost of implementing continuous audit process for risky areas is beneficial to the organization. Management should consider continuously auditing corporate functions due to their complexity. Applications used to audit should exhibit timely results, as this will benefit the organization more as lengthy prolonged efforts could reduce the provision for continuous auditing.

2.3.2 Identifying, monitoring and continuous audit rules:

In the second phase, rules that guide the continuous audit activity will be determined. These rules need to be programmed, repeated and reconfigured when needed. Control monitoring and auditing procedures need to put into consideration the legal and environmental issues of the organization, and the objectives of the particular process being monitored. The organizations environment and compliance requirement could affect how continuous auditing will be implemented in the organization.

2.3.3 Determining the process' frequency:

Knowing that increase in testing frequency has significant benefits, the extraction, monitoring and processing of testing results might increase the costs of the continuous audit activity. Therefore, the cost-benefit quotient of continuously auditing a certain function must be put into consideration prior to its monitoring. Additionally, an audit control panel should be put in place to work alongside other continuous audit function tools. This helps to check consistency and disparities. Therefore, the basic trait of continuous audit objectives such as prevention, may determine its occurrence.

2.3.4 Aligning the constraints of implementing a continuous audit plan:

It is important to configure guiding rules before implementing the continuous auditing procedure. Due to changes originating from the activity being audited, the regularity

of each set limitation might need to be updated after its initial setup. Therefore, rules, initial limitations, and the regularity of the activity should be made clear prior to the initiation of the continuous audit process, these processes are reconfigured depending on the set parameter's monitoring results. Additionally, the classification of information which has been audited into smaller groups permits easy monitoring of activities as well as allowing management to set those limitations properly.

2.3.5 Following up:

This parameter relates to how alarms and detected errors are managed. Once an alarm is triggered, the process manager, the manager's immediate supervisor, or the auditor in charge of the continuous audit process receives an alert. This parameter should also indicate when the follow-up activity must be complete. In addition to the areas that require attention when creating the continuous audit process, the continuous audit activity should include carrying out the follow-up exercise. Including checking and reconciling alerts before doing a follow-up by observing other roots of data and waiting for similar alerts to occur again before following up or carrying out conventional intense guidelines.

2.3.6 Communicating results:

Finally, communicating results with auditees is an important aspect of the steps. It is important that auditees get an independent and consistent result about the continuous audit activity. The risk of collusion should be taken into consideration when developing and implementing communication guidelines and follow-up procedures. A large number of research on fraud shows that fraud is majorly collusive and can be executed by an internal or external party.

The diagram below shows each process.

CONTINUOUS AUDIT IMPLEMENTATION STEPS
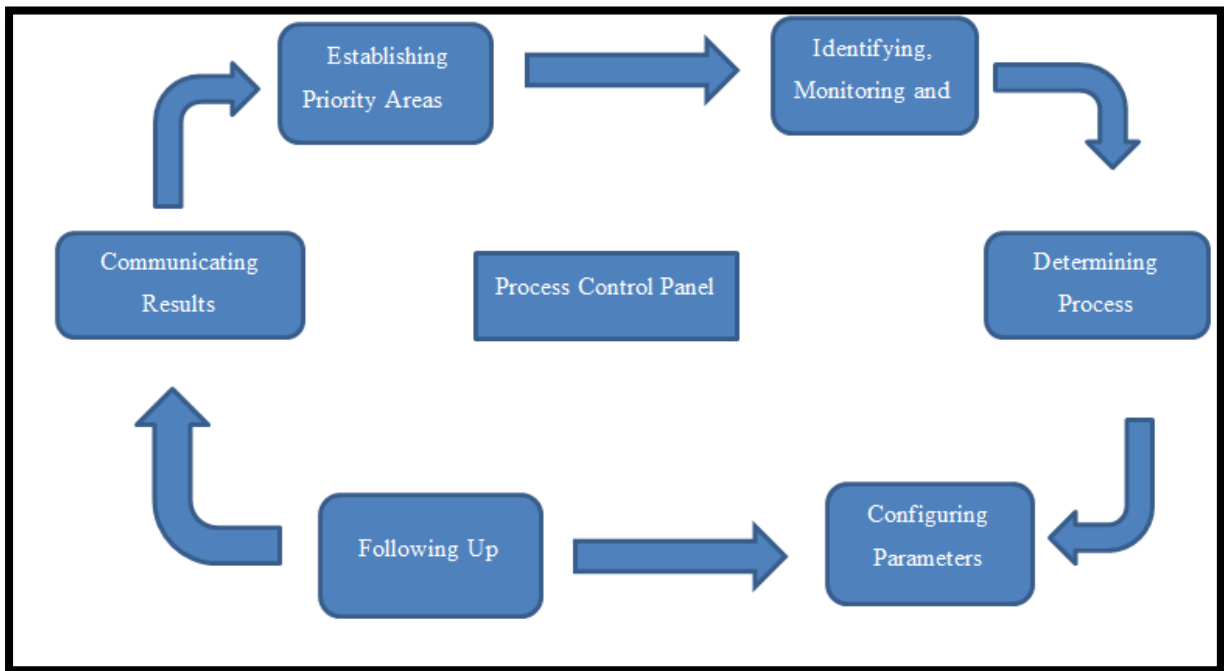
Figure2.2 Continuos audit implementation step

Source: https://iaonline.theiia.org/six-steps-to-an-effective-continuous-audit-process

2.4 Continuous Auditing and Performance

Rezaee, Elam & Sharbatoghile. (2006:150) affirm "making high-quality and timely decisions depends in part on the quality of the data and the existence of on-line and real-time information. Electronic and digital information is more flexible, accessible, transferable, and can be more easily stored, summarized, and organized than paper information". Continuous auditing uses audit methods, which range from regular control valuations to continuous risk assessments on a regular basis. Technology is an important factor in the continuous audit process as it assists in automating examination of trends and pattern analysis of key numeric fields (Coderre, 2007:1). With continuous auditing in place, auditors are able to assess management competence in monitoring controls as well as measuring risk areas and assisting IT auditors in providing independent assurance regarding the effectiveness of the control system and risk management process. (Coderre, 2007).

(Coderre, 2007) further argues that continuous auditing helps IT auditors to:

- Create an active strategy which focuses on risks by measuring each risks varying stages regularly;
- Assisting individual audits scope and objectives by helping the audit team in gaining improved knowledge of the basic or inherent features of the trades completed;
- Perform detailed level of test of controls in other to assess levels of compliance;
- Potential fraud, waste, and abuse should be identified by devising mediums to detect improvement in information support tests as well as fraud; and
- Ensure that auditors receive adequate access to, and the understanding of, key business information systems by supporting audit independence.

Organizations are highly exposed to assorted new risks such as: compliance and regulations, fraud schemes, operational inefficiencies, and errors that can lead to financial loss or reputational damage (Kpmg, 2012:1). Therefore, organizations attempt to explore creative mediums to enhance performance, asses and manage risk by implementing continuous auditing (Kpmg, 2012:1). CA methodology utilizes IT ability to capture data in its raw form in order to successfully attain timely audits.

The continuous monitoring of business process controls is a crucial aspect of continuous auditing (Alles et al., 2006:138). Pierre & Aboa, (2014) argues that Continuous auditing enables flexibility of producing reports. Reporting of the financial information to various stakeholders is easily done to meet the needs of stakeholders.

Internal auditors are required to audit control activities as well as monitor the organization's risk profile and be highly involved in identifying areas to improve risk management processes(Auditing, 2010). Rezaee et al, (2006:152) acknowledge that continuous auditing increase the quality of financial audits by permitting auditors to pay more attention in understanding a client's business and industry and its internal control structure which also helps monitoring organization performance easier. Malaescu & Sutton, (2013:8) draws on the study of Viator and Curtis (1998) and Hunton et al (2008) affirming that auditors with technical backgrounds deem automated control techniques as more effective than manual ones, while more frequent monitoring discourages management misbehaviour.

Coderre, (2006), cited in Malaescu & Sutton, (2013:6) While traditional audit techniques focuses on testing a small sample of the total transaction population, continuous audit modules allow for the timely identification of inconsistencies and weaknesses in the company policies and controls by monitoring all transactions in real-time .

The table below depicts a summary of the accounting cycle and the associated audit process. It shows the process of CA in an RTA system. According to Rezaee et al, (2001:152).The process includes: identifying monetary proceedings, measuring and recording of monetary proceedings, identifying the presence of an adequate internal control and preparation of financial statement.

Audit Activities

Time Period

Client: RTA

Auditor: CA Method

Transactions and other economic activities

Audit Planning

Having access to information relating to the client's business and industry,
Regularly updating knowledge and understanding of client's internal control structure including control environment and activities as well as creating an audit strategy design as well as using audit risk model and preliminary audit programs .

Interim Financial Statements 1/1/2015 -12/32/2015

On-Line, RTA information system

Interim Financial Statements 1/1/2015 -12/31/2015

Internal Control Structure

Consideration of internal control structure

Evaluating the internal control structure as well as understanding it.
Performing electronic tests of controls and modifying audit pro-

Electronically Processed Transactions

Substantively testing specific transactions

Using suitable electronic audit tools and techniques to perform audit procedures.

Ensuring consistent means of obtaining competent and sufficient audit evidence.

Year End 12/31/2015- 2/1/2016

On-line general& subsidiary accounts balances ledger

Substantive test of account balances and analytical procedures

Gathering sufficient and competent audit evidence,
Evaluating the timeliness and reliability of audit evidence and monitoring continuous audit approach.

On-line, real time financial statements

Complete the audit & issue an audit report

Delivering audit report, enhancing continuous audit approach, making continuous audit engagement decision
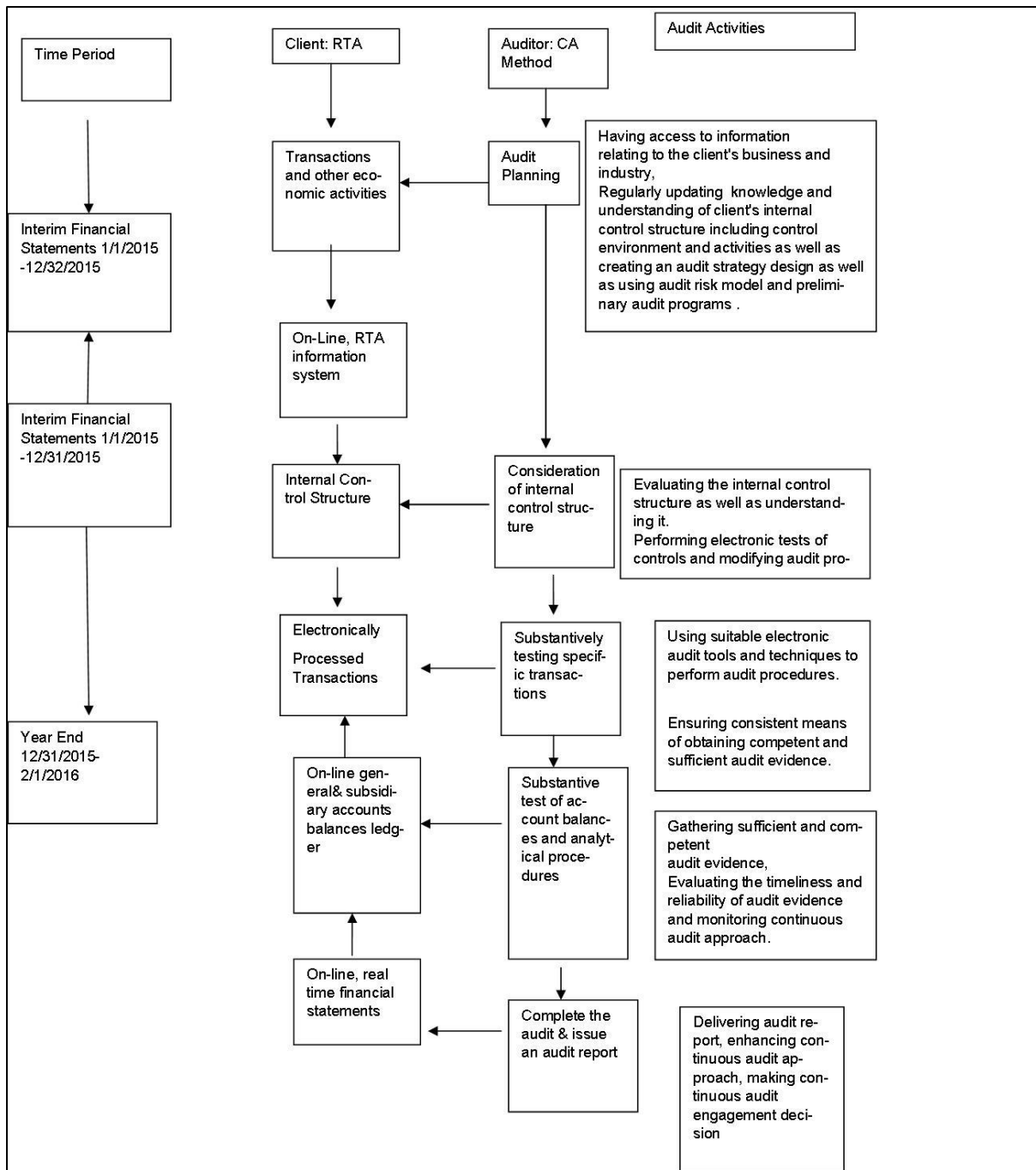
Figure 2.3: Summary of the accounting cycle and the associated audit process

Source: Zabihollah Rezaee, Rick Elam and Ahmad Sharbatoghlie, (2001).

With the implementation and use of CA in an organisation, the audit engagement cost will be reduced. Auditors are able to efficiently and easily test a greater transaction with CA. The amount of time and cost which auditors spend on traditional/manual examination of transactions can be reduced by CA (Rezaee, Elam & Sharbatoghlie, 2001)

Mcnally, (2013) cited in Malaescu & Sutton, (2013:10) with the existence of measurable or quantifiable ineffectiveness in previous years, affects the assessment of the control environment. Whereas, the existence of a continuous audit system will positively affect assessing control activities, information and communication, as well as monitoring activities as enunciated within the COSO framework. Searcy & Woodroof, (2003:46) give details of the components of CA, which include web servers that allow access to client database. The CA environment which represents real-time data flowing through the clients system and the auditors monitoring device, the continuous audit agreement, the continuous audit, the transmission of information between parties and the reports which provides assurance.

CA is dynamic in nature, which means the continuous audit process can be manipulated by the auditor. The auditor can reconfigure these activities according to the internal auditing plan, depending on the current data on the system. Therefore, by monitoring particular configurable items, continuous auditing provides an additional level of controls and acts as a Meta control.
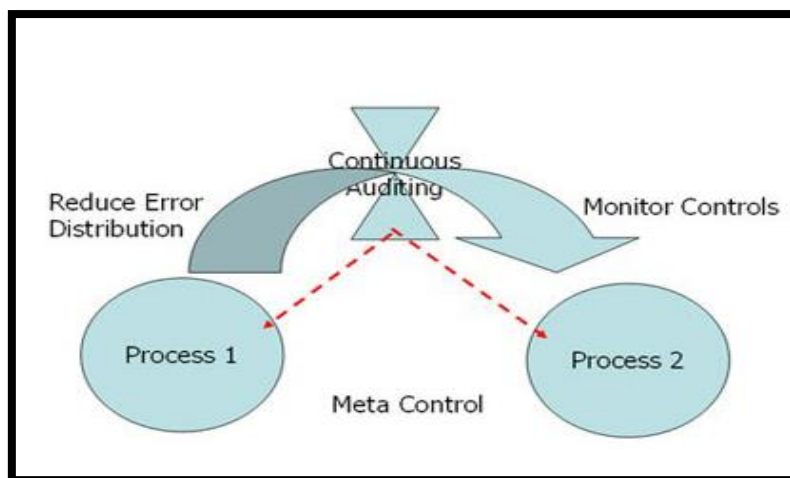
Figure2.4 Illustration of the continuous audit process' dynamic nature

2.5 Benefit of Information Technology in Audit Process

John (2009:1) states that with technology, regular checks of specific internal controls can easily influence the automation of audit activities. By this means, internal auditors have sufficient time to provide knowledge to their respective organizations. He further argues that as a way to develop an efficient risk management process, audit functions are focusing more on technology. In developing the audit process, competencies formed from the implementation of technology and continuous auditing indicates that the audit department is situated in a better place to complete its audit plan, which is a significant challenge for many audit departments.

The application of information technology in audit management is ensuring that an operative audit team exists to assist in guiding audit resources to attain concentrated advantage for the organization (Moorthy et al., 2011:3532). The diagram below explains this process further.

Figure 2.5 Use of information technology in audit management
Source: (Moorthy, Seetharaman, Mohamed, Gopalan, & Lee 2011)

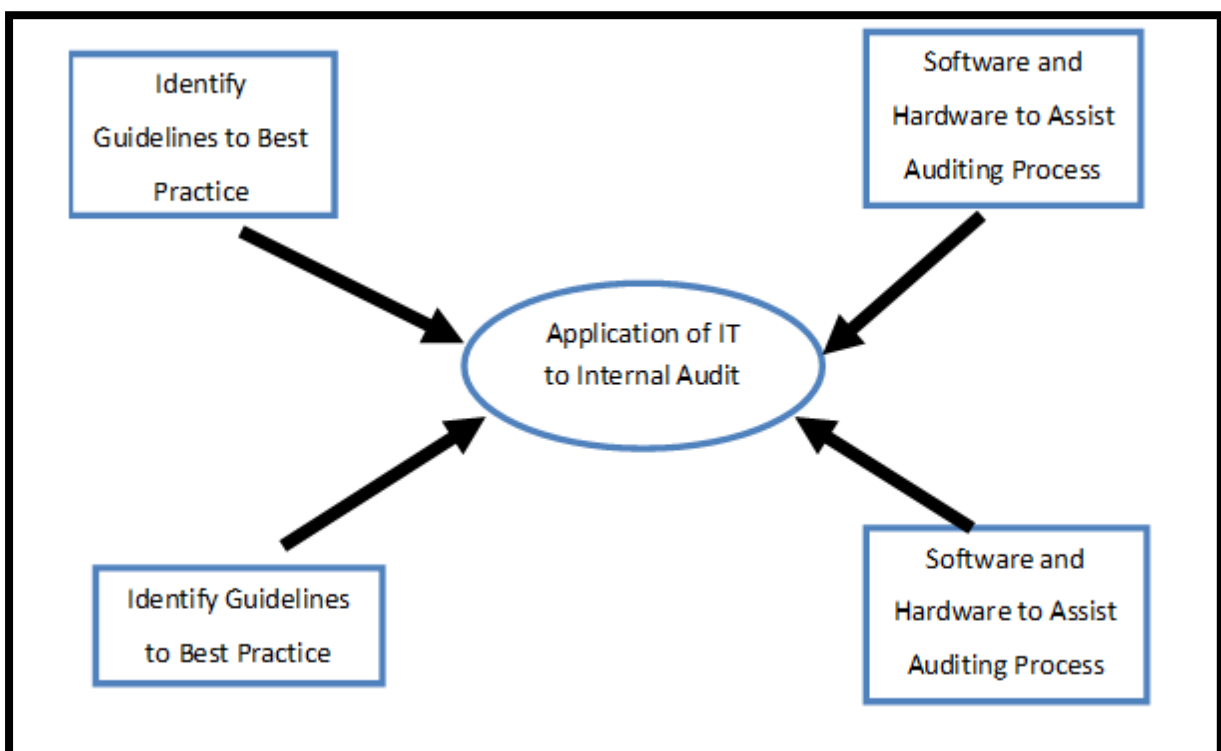The diagram above is a framework created by (Moorthy et al., 2011) explaining the process of IT application to internal auditing, these processes involve revising processes and activities as well as information that suggests high risks, making sure that audit engagements are prepared and managed, keeping audit records of both past and present, directing and continuously improving workforces, and establishing an effective communication line with each management and stakeholders.

ISACA (1998) and Yang & Guan (2004:554) cited in Rahman Abdul, Aida Binti Lope, (2014:462). Defines IT audit objective as a declaration of the anticipated outcome or mission to be accomplished by effectively applying control procedures in a certain IT activity. The method in which auditing is conducted is influenced by regular improvement of technology. Nevertheless, the general audit objectives do not change. An audit criterion is defined in a quantifiable manner which includes policies, procedures and standards which an organization should obey. The implementation phase consists of the assessing or evaluating the IS process by adhering to specific procedures, applying audit techniques and methodology to collect audit evidence.

Rahman Abdul, Aida Binti Lope, (2014:462) agrees with Majdalawieh et al. (2012:307). Study explains that as a result of the expansion of business and networks, processing systems have become more complex, the necessity to secure the system and the system's internal controls becomes crucial. Therefore, it is critical for a continuous assessment to provide accuracy and reliability of the systems. CA allows auditors to observe internal controls structure in general and provides the competence capability to carry out audit recurrently as well as offers the capability to enlarge the degree and the scope within critical areas of the organisation.

2.6 Information System Audit

According to the International Systems Audit and Control Association (ISACA), information systems auditing (IS) is defined as an organised system or procedure that gathers, organises and stores information. This procedure determines the integrity of the system and its related resources. Information systems provides relevant and reliable information which assists in achieving organisational goals effectively as well as providing internal controls that ensure reasonable assurance is provided. Information systems audit is any audit that includes the assessment of computerised information processing systems, and the associated manual system. Therefore, IS audit is a subsection of the standard/regular auditing process (Magee, 2016:1).

Singleton (2010:1) findings show that a major tool used in conducting audits, especially fraud and IT audits is the use of a computer-assisted audit tool (CAAT). Janvrin et al (2008:1) reports that his study of Auditor Acceptance of Computer-Assisted Audit Techniques systems shows that the complexity of IT affects the nature of audit testing. This finding is supported by Vasile-Daniel (2010:1) replication of his study on how financial auditors use CAATS and observe ERP systems. He argues that; auditors are now required, by their professional standards and the existing environment in which they work, to completely employ the use of computer-assisted audit techniques especially when auditing organizations that have difficult information systems such as ERP in place as this system generates specific risks due to reengineering and customizing business-process. The analysis of Magee (2016:1) report suggests that there are two major steps to undertake while planning IT audit which include: firstly gathering information and organising them and the and the next phase is to understand the current internal control structure. Organizations are gradually moving towards a risk-based audit approach system to measure risk. This system helps an IT auditor to decide if it will be appropriate to carry out compliance tests or substantive tests. In identifying inherent risk, the auditors rely on general operational knowledge gathered about the company. Such risk assessment decision helps to understand the cost effect of implementing a certain control to mitigate a risk. While gathering information, the IT auditor needs to identify these five items:

- understanding the organization environment,

- Audit outcome of previous years,

- Current finance/financial statistics,

- Governing body status, and

- Inherent risk assessments

ISACA (2008:2) cited in Vasile-Daniel (2010:491) indicates that information systems audit and control assessments reflects that in performing audit procedures, CAATs may be used. CAAT may be used in testing transaction details and balances, performing analytical review techniques, carrying out compliance tests of IS general controls doing compliance tests of IS application controls and infiltration testing. During the audit plan, auditors need to employ the use of an applicable combination of manual techniques and CAATs.

A framework was developed by the IT Governance Institute and the Information Systems Audit and Control Association (ISACA). Rouse, (2016:1) explains that this framework was developed as an instrument to help the implementation and improvement of information technology and management practices. The COBIT framework was published in order to establish a mutual communication language for business executives to interact with each other about set goals, objectives and results. The latest version of this framework places emphasis on the value that information technology governance can provide to a business' success. It additionally gives an insight about enterprise risk management.

2.7 ERP and Performance Audit

Performance management is system of unified effort between managers and employees work together in order to organise, monitor and review the work objectives of employees as well as their overall contribution to the organization. Performance management is beyond the annual review of performance; it is also the incessant routine of providing training for employees and setting career objectives to

ensure that their career goals are being met (Council.ca, 2015:1). The establishment of internal controls is to assist   management in having control over general activities and operations of the organisation in order to achieve organisational objectives. ERP affects various fundamental features of a company's operations. Therefore, being able successfully implement and use is vital to performance and survival (Njeru, 2014:208).

Wieder et al., (2006:15) argue that results from a univariate analysis of performance variances over periods of time indicate that the adoption of enterprise systems show a considerable higher differential performance in their second year after the completion of the system. The optimization of the usage of ERP software requires continuous controlling of the system usage (Rosemann, 1999:774). According to Coresponding & Chen (2010:28) the dependability between the ERP system and an organisations business process differs according to the performance in the systems implementation that is selected by an organisation. Irani and Love (2001)(cited in Coresponding & Chen.,2010:30) argued that in order for an organisation to achieve performance, it is important that there be a sync between ERP systems and the organisations' business strategy.

ERP is adopted in many organizations in an attempt to improve business performance. Elragal & Al-serafi (2011:2) further argue that firms purchase ERP systems for technical gains or for improving operational performance and efficiency. The performance of ERP systems depends entirely on how it is installed, configured and rolled out. When effectively installed, the system could enhance performance and better information gathering. (Dlodlo,2011:68,1).

Elragal & Al-serafi, (2011:5) draws knowledge from Pilat (2004) reporting that when an organisation employs the use of information technology, the comparative efficiency when equated to non-IT users surges. The combination of IT technologies can produce higher positive results on productivity. Nicolaou,(2004) Cited in Elragal & Al-serafi, (2011:5,6), The effective management of IS applications such as the ones linked to ERP can also be identified as a system that contributes to performance growth.

Kang et al. (2008) cited in Elragal & Al-serafi, (2011:6) also stated that aligning business aims with ERP objectives is a significant aspect for producing business benefit from the ERP system. Continuous audit is defined as "a method used to perform control and risk assessments automatically on a more frequent basis" (Malaescu & Sutton, 2013:1). In workplaces today, improvement in performance and the role of performance management is a progressively widespread issue. Due to the increasing pressure on businesses and organisations, there is an intense focus on performance management to transcend from its regular effective process into executing better business strategy and doing more with less in the bid to remain competitive (SAP, 2015:1). Constant tracking of organisational goals provides the opportunity for feedback to be given as they are needed or required, it also assists in making alterations to plans that are performance related. With no tracking device in place to frequently reconcile goals with progress, the recurring nature of the on-going process falls apart (SAP, 2015:1) ERP systems main purpose is to support business processes in order to improve the company's strategic opportunities.

An ERP System helps to automate and integrate important business processes, which include taking customer orders, operations preparations, and maintaining financial and inventory records. ERP systems supports improvements by helping an organisation in achieving effectiveness by: providing assistance in defining and ensuring that business processes are complied with throughout the supply chain, providing protection of important business data by ensuring that roles and security access are properly defined, enabling the possibility of planning day to day activities with existing orders and predictions, providing tools that enable a remarkable degree of service to customers and interpreting data into decision making information (Syspro, 2016:1). An article by WorkwiseSoftware (2013:1) concludes that performance management gives deeper understanding of the system that affects performance in any aspect of business production, supply chain, sales, product lines, customers and channels. Performance management gives clarity about the true drivers that impact the bottom line being employees and their output. Understanding these systems can also provide the foundation for implementing continuous improvement programs in the organization.

WorkwiseSoftware (2013:3) further analysis on ERP explains ERP as a basis for performance management, stating that the major advantage of an ERP system is its capability of providing real-time information, which is the ability to see and access all activities within the company as it happens. However, having complete access to all data doesn't necessarily mean success but focusing on the key portions of information that differentiate between success and failure is important for the organisation. ERP guarantees consistency and avoids repetition and incoherence in various parts of the organization once distinct business processes are integrated with the system. The collective affirmative effect when business processes integrate well could lead to greater performance by the organization. The system also enables the organisation to produce quality reports and perform performance analysis on the organization.

The analysis of Ranganathan and Brown (2006) and Fuβ, Gmeiner, Schiereck, & Strahringer, (2007) cited in Dunaway & Bristow(2014:6) study points out that with an ERP system in place, management and executives can carry out and draw up improved business due to the availability of all data within the system. The performance of a business can increase because of the ERP systems ability to integrate business processes that navigate numerous business functions, divisions, and geographical locations. Dunaway & Bristow (2014:6) agree with Ranganathan and Brown (2006) study which suggest that the capability to control possible development within the company and future e-commerce and e-supply chain investments is one of the benefits of having an ERP system. They further maintain that there could also be significant reduction in IT. Since there is one main place for information storage, this reduces the chances of mistakes occurring and imputing inappropriate information for future transactions. However, Wieder et al (2006:14) study establishes that there is no significant performance difference between ERPs adopters and non-adopters, either at the business process level, or at the overall firm level. Firms with longer experience of the ERP system obtain higher overall performance. There is however no evidence of a similar effect on business process (supply chain) performance.

2.8 Performance Management and Business Process

ERP programme brings different modifications to the organization and its information systems. It entails that the re-engineering business process should be able to control the flexibility of the system, and should also possess the power to manage high levels of intricacy. Most organisations rather reengineer their business processes alongside an ERP implementation (Madani, 2000:104). Elragal & Al-serafi, (2011:4) further state that ERP projects frequently involve business process re-engineering and with proper management, it could lead to successful performance management. Analysing, understanding and improving business processes promises improvement in the general performance of an organization.

Melão, (2001) (Cited in (Vliet, 2013:14). Business rules focus on improving effective usage of ERP systems by aligning specific businesses and the supporting ERP system while business process modelling improves efficiency through standardization and automation of the business. When modelling the performance of the organization and the supporting ERP system a business process perspective is used to measure effectiveness and efficiency of the organization (Vliet, 2013:13). It is the functionality of an ERP system to improve organizational performance and improve informal and ineffective business processes. The regular monitoring of the business processes control depends on programmed actions, and so, it assumes that the control and the process of supervision are correct (Alles et al., 2006:143). ERP performance is measured in terms of the business value of automation business processes, the business value of informational business processes and the value of transformational business processes (Vliet, 2013:42). Nicolaou, (2004) cited in Elragal & Al-serafi, (2011:6) studies explains that Proper management of information systems implementation such as those comprised in with the ERP system have been described as an imperative contributing element that affects performance advancements from the system.

Kocaoglu & Acar, (2016:2) elaborates on the study of Zairi and Sinclair, (1995) & Taylor, (1998) stating that Business Process Reengineering (BPR) and ERP do not

necessarily complement each other however, they can be designed to support each other. A BPR program is in actuality a change management program, which is more so with ERP in the fore front. The contribution of ERP systems towards the implementation of BPR can be significant in terms of scope, configurability and its integrative ability. Sandberg (2014:2) study points out that the effects of implementing new IT in an organisation varies amid diverse systems. The use of ERP systems has increased dramatically.

Davenport, (1998:1-6) reports that his study of ERP systems shows that enterprise systems can have a positive impact on an organisations business process, but they could be equally risky. With enterprise systems, the business operations must be customized to work with the system, installing these systems requires great investments and expertise due to their complexity. However, technical difficulties are not the reason why ERP systems fail; they fail due to business problems as companies fail to reconcile the technological constraints of the system with the business need of the organisation. Therefore, a clear understanding of the organisations business implication is vital to know before installing an ERP system. This finding is supported by Kholeif, Abdel-kader & Sherer (2007:8) reproduction of why ERP systems may fail. Having to Customise ERP system to fit the business processes was the main reason for ERP failure.

Sandberg (2014:3) also supports this finding stating that, as much as there are recorded successes of ERP systems implementation and its contribution to business success, various failures have been stated. ERP systems strong point greatly depends on the incorporation of information/statistics from various sources; it therefore has a significant influence on organizational business processes. Sandberg (2014:5) draws from the study of Hanseth et al. (2001) emphasizing that ERP's do not only increase integration of data but also of functional and geographically detached entities. Sandberg (2014:8) additionally advocates that ERP systems can significantly impact business processes by employing the use of best practises. Given the complex nature of the use of this system, organisations are faced with great challenges and uncertainties. However, ERP systems can be a good tool for securing data quality standardization, measurements and processes.

2.9 The Internal Audit Process and ERP Controls

Drawing from the study of Saharia, Koch & Tucker (2008:578) showing that Innovative opportunities and challenges in handling internal as well as external risks have been created due to the implementation of enterprise systems. From the internal auditing perspective, internal auditors identified a decrease in financial and operational risk and an increase in technical risks. Gopalan (2012:4) indicates that due to the technical complication of ERP systems, it is mandatory for auditors to have increased knowledge in computerized information. Organisations operating with enterprise processes emphasises on gaining knowledge of the business processes as to executing regular fundamental tests of controls, putting the application and process controls through regular checks. Concurrently, auditors need to certify that the system is automating the process accordingly.

The risks which are connected to the implementation and incessant use of an ERP system are measured by reviewing the risks alongside the organisations business process control objectives. Therefore, The IS auditors' main challenge is to be knowledgeable of the organisations business environment operations. They also need to possess the required skill and ability to identify technical risk and behavioural risk (ISACA, 2003:3).

(Saharia et al., 2008:578) present arguments to emphasize that, Enterprise systems has opened doors to innovative opportunities as well as challenges given that using an integrated system increases transparency in business processes but also eradicates the need for controls that assure the consistency and accuracy of data due to data moving from one system to the another. The necessity of imputing the data related to a specific transaction separately into different applications is eradicated since there is a single data entry point. This means that the control to implement information validation, information precision, and information privacy limitations need to be implemented only once. Drawing from the knowledge of ISACA (2003:2) pointing out that data is collated from various department in an organisation by an ERP system in order to provide each department with the ability to process information. An ERP system does not only imply planning, it also implies essential critical business processes of an organisation. Notwithstanding the major

46

effectiveness of the concept, lack of adequate management and control of the system implementations can lead to failure of delivering expected results. In addition, new emerging trends such as, web-enabled customer interfaces has influenced the growing acceptance and use of ERP systems. This has intensified the importance of the security and control awareness for ERP.

Gopalan (2012:4) remarks that the enterprise resource planning system combines both operating and monetary statistics using compound data movement therefore, each business transaction is imputed spontaneously disregarding the need for evaluation, which could lead to false information entering the system. Hence, the designing of control measures needs to be done in order to eliminate the possibility of imputing imprecise data. In an ERP environment, auditing must be done through the computer. Therefore the application of an unified ERP process helps the internal control process develop independently so as to improve automated operational management. Hence, financial practitioners are switching from the regular manual monitoring approach to applying automated internal controls which will permit managers to monitor operations through ERP systems effectively.

Aryani & Krismaji (2012:1) stated that the effect of ERP system implementation on financial accounting quality is still debatable. It can be argued that the decline in audit quality and internal control effectiveness after implementing ERP systems in an organisation will decrease the faithful representation of the accounting information. O' Leary (2004:64) gathers knowledge from Hunton et al. (2003) suggesting that the financial performance of organisations that adopted ERP did not change but the financial performance of non-adopters decreased. Hence, it was necessary to implement the ERP system in order to remain a competitor.

Wright & Wright (2002:101) study proposes that ERP systems do not just signify improved software and hardware; they also affect the connection among business processes. The process of customizing an ERP system in order to achieve desired business functionality could lead to high chances of financial misstatements risks. Auditors and company managers should be aware of the risks involved in implementing ERP systems. However, Gopalan (2012:10) findings establish that with the implementation of ERP in an organisation, management is fully equipped with

different systematic device which could be utilized in examining as well as managing the daily activities of an organisation. With these extra controls in place, if used, may assist in enhancing the entire internal control structure. Using the ERP system to process and analyse enormous amounts of data could give the auditors the opportunity to employ overall or specific computer audit techniques and devices in carrying out audit tests.

2.10 Continuous Auditing and ERP

An ERP system is a unified software solution that extends across the variety of business processes which facilitates the provision of a general assessment of the organisations business enterprise (Ehie & Madsen, 2005:545). The improvement and pervasive use of ERP systems provides the vital infrastructure necessary for the effective development of the assurance function from periodic events to an on-going process through integration of continuous auditing applications (Kuhn & Sutton, 2010:109). Great quantity of internal and external factors is involved in the ERP implementations process, thereby making it complex in nature. The implementation of such systems requires effective participation of the whole organization (Ahmad & Cuenca, 2013:105).

Madani (2000;103) states that ERP solution has consequences that affect the internal audit function. Internal control systems add significant value to management needs by ensuring that the system provides assurance on all operational activities and compliance procedures. The ERP solution is said to have integrated built-in controls as a technology that enables internal auditing. However, the objectives of implementing internal control systems could stay constant, tools used in measuring control activities can vary. Traditional controls will not be cost-effective in the ERP solution and this may hinder efficient delivery of the required level of control (Madani, 2000:103). In an ERP solution, the presence of a systematic and functional internal control system is imperative. The internal auditors' commitment before the implementation of an ERP system should be crucial to ensure initiating business analysis with ERP implementation. This procedure will guarantee an effective business process and control implementation. Therefore, reliable assurance on operations and transactions can be granted (Madani, 2000:103).

Dlodlo, (2011:1) extracts from the knowledge of Gore, (2008:5) stating that enterprise resource planning systems are extensively used to extract and process data from various functional areas across the enterprise. Bae, (2004:11) agrees that organizations moving towards reporting in real-time with the use of an ERP system is a great improvement. Bae, (2004:11) highlights the work of Gibbs (1998) and Glover, Prawitt, and Romney (1999) affirming that it will become essential for organisations that use ERP systems to implement advanced auditing techniques and skills especially where cooperative efforts are needed within a firm. Despite the involvement of auditors in ERP, their independence can still be maintained and can be keenly involved in the implementation and operation of a client's ERP system. Mtsweni & Bierman (2008:28) cited in Dlodlo, (2011:12) ERP offers two major benefits that is nonexistent in disintegrated departmental systems: Integrated enterprise view of the business that includes all functions and departments; and a system that collates all business transactions records, processed and reports.

This combined view increases the prerequisite for interdepartmental cooperation and coordination. Nwankpa & Datta, (2016:64) gathers knowledge from (Devados & Pan, 2007; Bagchi, Kanungo & Dasgupta, 2003; Grabski, Leech & Lu, 2001) explaining that with ERP systems, continuous auditing becomes an instrument where information systems are used to maintain real-time sharing and monitoring information. ERP systems are fundamentally different from other information systems because of their scope, complexity and risk associated with it, thus making implementation very challenging. Nwankpa& Datta, (2016:64) further agrees with (Hunton et al., 2004) arguing that ERP systems brings changes such as internal control, business processes and segregation of duties that particularly influences the auditors' behavior through business disruption process and the overall internal control process. Bae & Ashcroft (2004) cited in Nwankpa & Datta, (2012:67) note that, ERP-driven real-time data access improved auditor competence when auditing in an ERP environment. Bae & Ashcroft (2004) cited in Nwankpa & Datta, (2012:67) further found that ERP systems provided tracking abilities that effortlessly followed a transaction throughout the system.

Pairat & Jungthirapanich, (2005:28) state that ERP improves business potential; the improvement in businesses with the use of ERP is attributed to continual advancement in ERP development. They also define ERP as an accounting oriented information systems for ascertaining and planning the enterprise extensive resources to take responsibility for customer orders. ERP systems are packaged business Software that is able to distribute and access information in real time. ERP applications include supply chain management (SCM), customer relationship management (CRM), product lifecycle management (PLM), E-procurement, and financial management (Coresponding & Chen, 2010:26).

The notion of business performance can be operationalized as financial gains by the organization, operational improvements for the organization or insubstantial gains for the organization (Elragal & Al-serafi, 2011:1). As a response to global demands for regular, efficient and timely assurance over the effectiveness of risk management and control systems, companies are progressively gearing towards automated control environments through the implementation of technologies such as continuous audit modules (Malaescu & Sutton, 2013:1).

According to Rezaei, (2013:93). Previous studies identified that implementation of ERP systems created variations in audit approach. Nonetheless, there has been very little research on the influence ERP has on continuous auditing, Rezaei, (2013:95) further argue that, Although, there are many elements that determine the quality of audit, however, in the modern business environment, audit quality is associated to IT applications such as ERP systems.

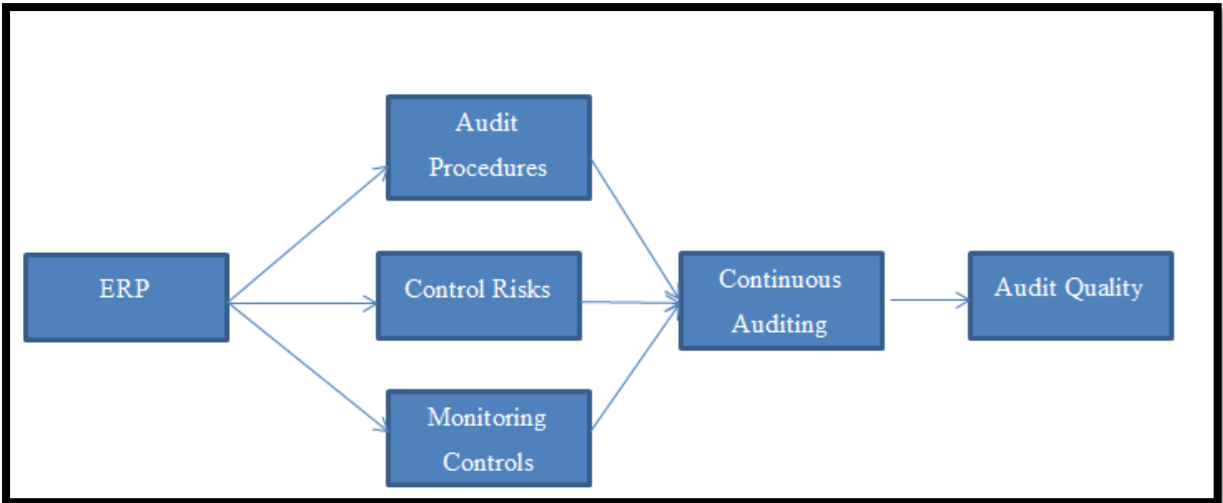The figure below shows the relationship between ERP and variables related to this study.

Figure 2.6 Relationship between ERP and Internal Audit Process

2.11 Chapter Summary

Table 2.1: Summary of Chapter 2

Literature Review	
1. Introduction of the chapter	This was discussed in 2.1. Essential items that were reviewed in this chapter were introduced in this section.
2. Continuous Auditing	The review of literature in sections 2.2 & 2.3, provide a view about continuous auditing and the major theories surrounding the study so as to provide the reader with a solid background on the literature review. Since the main component of this study is centred on continuous auditing, its benefits, implementation and process, this section therefore provides a general understanding of these key concepts.
3. IT audit and Process	In section 2.4&2.5, the value of integrating IT with internal auditing processes was discussed also the application of IT with the internal auditing process using a framework created by (Moorthy et al., 2011) was used to analyse and understand the process. The IS audit function will expose the reader to how the internal audit function has evolved and the available tools developed to perform IT audits. This approach was used in order to enhance logical thinking around the integration of information technology and auditing practices in organisations.
4. ERP and Performance management	It is important to note how the implementation of ERP systems could affect performance of the organisation in order to be able to understand why organisations should or should not adopt it as it addresses the objectives of recommendation of a performance management framework of continuous auditing for organizations.
5. Performance Management and Business processes	The research discussed using the ERP systems to configure business process, generation of the process, monitoring the process as well as monitoring the organisations performance in general. It gives an insight on how business process generation has evolved over time. This method was taken to

	help readers get detailed knowledge and understanding of business processes and its impact on the organisations performance.
6. The Internal Audit process and ERP controls	For this research, it is crucial to know how the internal audit process revolves around the ERP system. It gives insight into how the ERP system facilitates managing of internal and external risk, seeing that the ERP system itself has certain in built controls.
7. Continuous Auditing and ERP	One of the objectives of this research is to investigate how ERP systems' implementation can influence continuous auditing in an organization. The section 2.9 discusses the integration of ERP with continuous auditing to fully automate all business processes, policies and procedures in other to assist the organisation in obtaining set objectives.

CHAPTER 3

UNDERPINING THEORY

3.1 Introduction

The application of theory in empirical research provides a framework for analysis of the problem and helps to determine the interplay between the embedded variables. It also helps to build internally consistent relationships with the view to makes specific predictions (Walter, 1998). The previous chapter discussed the relevant literature to provide and substantiate the problem - how it is a problem and why is it still a problem. However, to effectively explore the problem, it is imperative to identify the variables and their relationships within the problem domain or the phenomenon. As such due to the ontological position (i.e., subjective) adopted in this research and the sociotechnical processes embedded in the domain, Orlikowski's (2000) enactment of technology in practice of Giddens' (1984) structuration theory was adopted. The theory served as a lens through which to explore the problem. Gibbs, (2010) explains that the sociological notion which proposes various viewpoints on how humans behave is known as structuration theory. The various perspectives of human conduct which is centred on structure and agency effects are known as the "duality of structure." Structuration theory does not merely describe human capability to act as an action that is manipulated by a stable social structure like; education, religion, or politics. Structuration theory recognises communication and power. It also suggests an active connection between various aspects of society.

Twum-Darko (2014:468) drawing from the knowledge of Giddens (1986:14) advocates the view that the two fundamental concepts of structuration theory are Agency/Agent and Structure. Lamsal (2012:113) "state that the basis of the theory of Structuration involves the identification of the relationship between the individuals and the social forces that act upon us". Hence, this research will look at human interaction and its relationship between different aspects of society influence.

Lamsal (2012:113) further highlights that human actors are elements that permit the formation of our societal structure through designed standards and customs, as well

as reinforcement through social acceptance. However, people are forced by our social structure. Twum-Darko (2014:468) holds the position that 'rules and resources' are recursively implicated in social reproduction. Therefore, structure is what gives form and shape to social life, however, it is not itself the form and shape. Giddens (1989: 256) cited in Twum-Darko (2014:468). Structure and the ETiP exist only in and through the activities of human agents. ETiP is used in the context of this paper.

3.2   Overview of Structuration Theory

This research uses Giddens Structuration Theory (ST), and in particular the duality of structure as applied in the technology space by Orlikowski's, (2000) in the concept of "Enactment of Technology-in-practice" (Orlikowski, 2000)(Orlikowski, 2000)(Orlikowski, 2000)(Orlikowski, 2000)as a guide to comprehend and construe the problem – a socially constructed phenomenon i.e., impact of continuous auditing on performance audit: the role of ERP. It is to tease out the factors influencing performance audit, internal controls, business process and compliance with company policies and procedures. Thus, duality of Structure is the process whereby "action and structure presupposes each other". Giddens, (1984:25) argues that 'Actors (described as human agents) and social structure (rules and resources) are interrelated'. Giddens (ibid.) contends that social structures do not exist independent of human action, nor are they only manifested as material entities.

Contributing to Giddens (ibid) argument, Lyytinen and Ngweyama (1992:21) indicate that all social activities, including work processes, can be viewed as enabled and constrained by social structures which is produced and reproduced by human agents. Giddens (1984:25) argues that "the structural properties of social systems are both the medium and outcome of the practices they recursively organize and that duality of structure is a key principle of structuration theory by showing that agency and structure are dependent upon each other and recursively related." Giddens' conclusions is examined and explained by Twum-Darko (2014) who argues that human action is enabled and constrained by structure, and structure is also a result of human action.
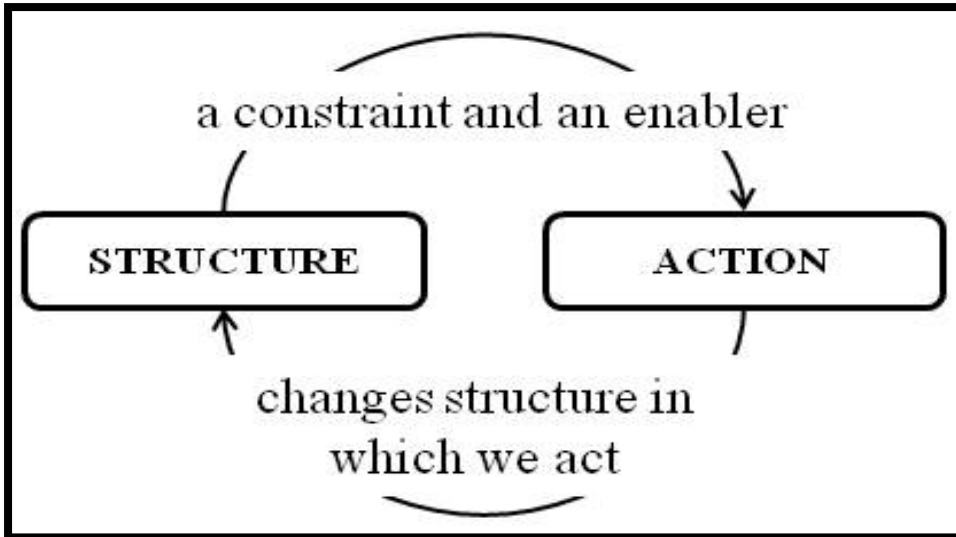
Figure 3.1: Structure and Action

Furthermore, Orlikowski (ibid.) argues that "users'' interaction with a technology is thus recursive in their recurrent practices; users shape the technology structure that shapes their use." These enacted structures of technology use, which she termed "technologies-in-practice, are the sets of rules and resources that are (re)constituted in people's recurrent engagement with the technologies at hand" (Orlikowski, 2000:407).

It is this on-going argument that this research investigated the extent to which users' behaviour has contributed to continuous auditing and how it impacts on the performance of an organization. Thus, people draw on the modalities of the technological artefacts (their material properties), their own knowledge and experience, power relations and organizational norms to perform a "specific set of rules and resources in practice that then serve as structure for future use as people continue to interrelate with the technology on a daily basis. Thus, over time, people constitute a structure of technology use, that is, they enact a distinctive technology-in-practice" [ibid.].
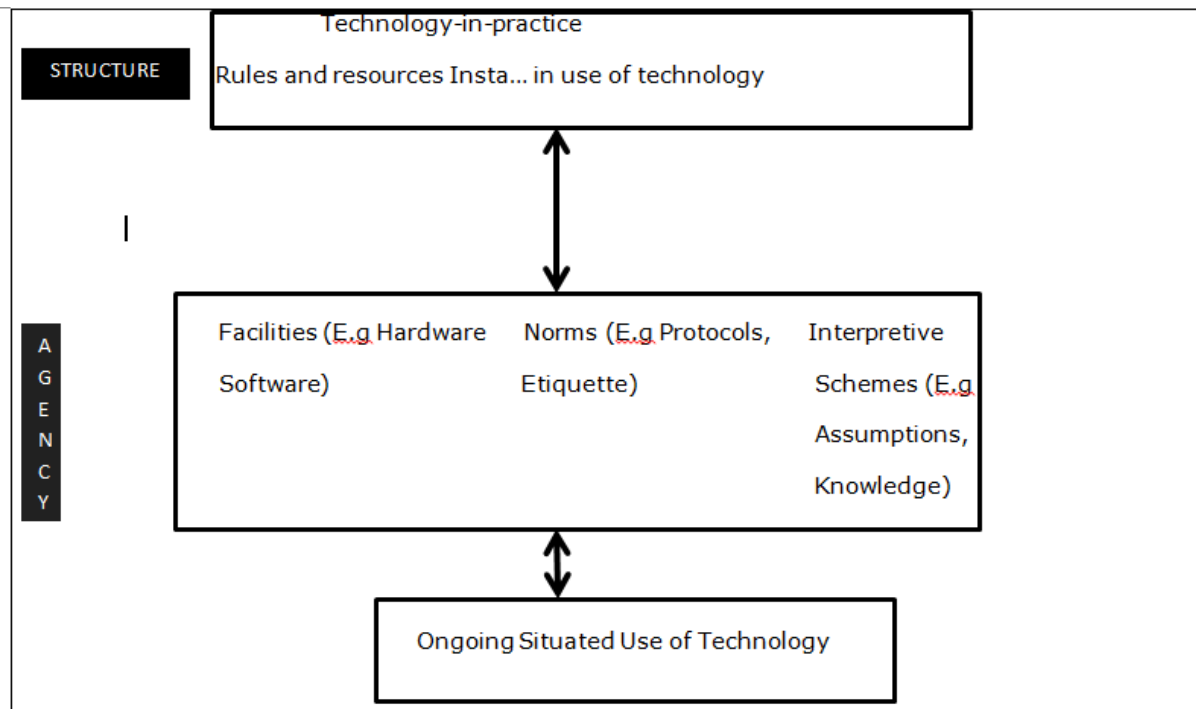
Figure 3.2: Enactment of Technologies-in-practice
Source: Orlikowski. 2000

In the diagram above (Figure 7), Orlikowski presents a structuration model based on Gidden's model. Structure includes: Signification, domination and legitimation. The signification structure as stated by Giddens (1984) deals with organizational interaction using various interpretative schemes. The domination structure involves the use of various ways of exercising power over different types of resources (Mauerer & Nissen:2014). Domination is simply the exercise of control and using authoritative resources, along with power, over other people or resources (Giddens: 1984). Legitimation involves the performance of human behaviour, legitimation structure defines the 'Do's and the Don'ts' (Orlikowski & Robey: 1988).

Orlikowski & Robey (1988) describe 'Facility' (resource) as the means through which intentions are understood, goals are accomplished and power is exercised. 'Interpretive schemes' can be described as regular, collective stocks of knowledge that humans draw onto in understanding behavior and events, hence reaching meaningful interaction (Orlikowski & Robey, 1988). According to Twum-darko (2014) norms are moral codes, leaderships, understanding and endorsement for human interaction.

3.3   Conceptual Framework

This research draws from Orlikowski, (2000) enactment of technology-in-practice as a guide to conceptualize the problem as illustrated in figure 3 below. This deduction enables continuous auditing -in-practice to be defined as a structure because it is the medium and outcome of the auditing practices recursively coordinated. Thus actions such as compliance of rules and effective use of resources enabled by adequate infrastructure create a structure, which in turn either enhances the next action or constrain it. Furthermore, if ERP systems act as the infrastructure with the inscribed policies and standards, it is envisaged the right behaviour and the necessary authority will be given to entrench continuous audit-related practices in an organization.   The problem conceptualization in figure 3 guided the preliminary literature review and the design of data collection instrument.
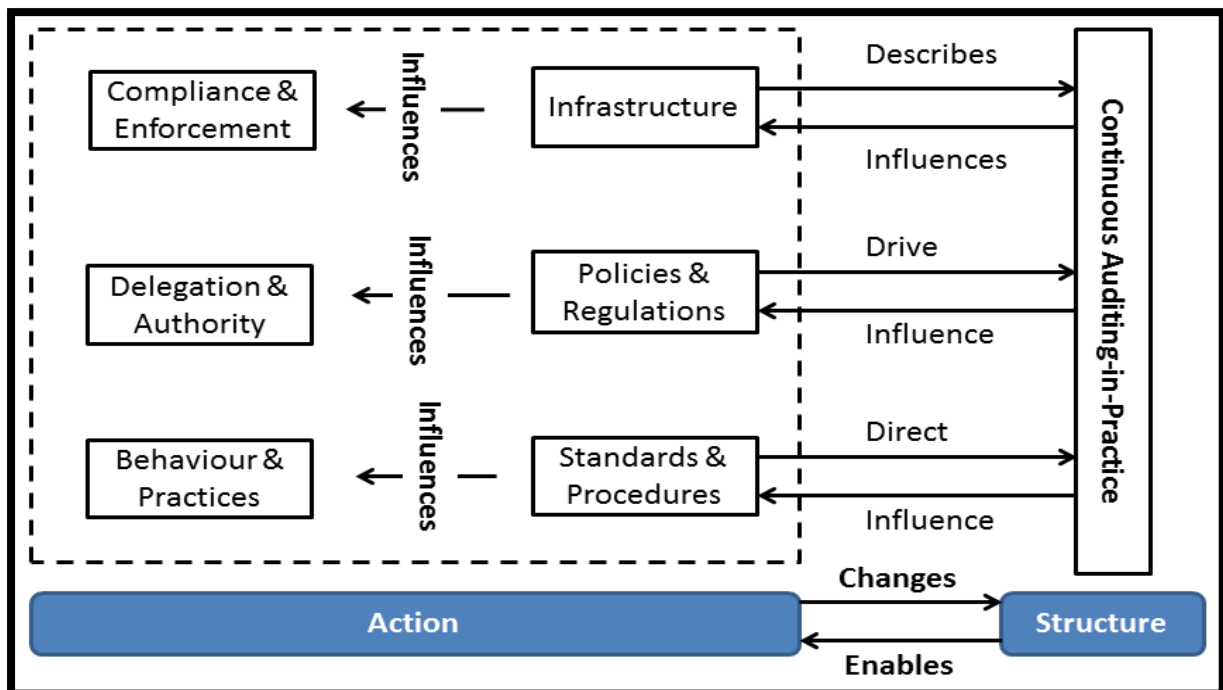

Figure 3.3: Conceptual Framework

As stated in the investigation and assessment above of the current knowledge on continuous auditing and ERP systems and/or lack in that respect, a conceptual framework was established, to conceptualize the problem as a social phenomenon, as well as to assist in providing in-depth knowledge and clarification of this social phenomenon. The framework was used for the research design, and the data collection and analysis. The framework proposed above was expected to determine the weaknesses that might exist in managing continuous auditing with ERP.

The above conceptual framework was derived from the literature and the conceptualisation of the research problem to understand the research domain and how to interpret the factors contributing to the implementation of continuous auditing. The above conceptual framework is further elaborated below:

(a) Facility: Twum-Darko,(2014:469) explains "facility as one of the modalities that shape human interactions with structure" therefore facility is seen as resource that when assigned, should work to utilize or apply control through regular situated of IS/Technology. According to Twum-Darko,(2014:470) agreeing with Giddens (1986:25), creates and duplicates services that influence societal structures of dominion (i.e., Technologies-in-practice). Facilities in the diagram above include infrastructure, policies and regulation and standard and procedures. These recourses help form the interaction between human beings and structure.

(b) Norm: "a norm refers to moral codes, leadership and e-skills/skills. A norm is also an understanding and endorsement for human communications, which eventually produces legitimation within structures" Twum-Darko, (2014:270). Compliance and enforcement, delegation and authority and behaviour practices are the norms highlighted in the diagram above. These norms affirms legislature as a function of information technology.

(c) Interpretive Schemes: According to Twum-Darko, (2014:270) An Interpretive scheme is the link between two modalities; Structure and interaction which are associated with each other and have similarities with Facility and Norm. The use of interpretive schemes by humans to communicate helps them make sense of their interaction although these interactions replicate identical interpretive schemes that

are entrenched in structures as signification. Structure here is continuous auditing-in-practice.

3.4 Chapter Summary

Table3. 1: Summary of chapter 3

Underpinning Theory	
1. Background of the theory	This was provided in section 3.1 which gives a general understanding of the mentioned theory.
2. Overview of the theory	Section 3.2 provides the overall view of structuration theory. Since this research deals with human interaction with technology, an overview of the theory is important to note.
3. Conceptual framework	The identified gaps resulting from the review of literature as a lead to the development of a preliminary conceptual framework as seen in 3.3 using ETiP to conceptualize the problem.

CHAPTER 4

RESEARCH APPROACH

4.1. INTRODUCTION

4.1.1 Research Methodology

The literature review in Chapter 3 and the case study identified and described in this Chapter to tease out the defined problem made it suitable to use interpretive philosophy. This is because the interaction between the ERP system and continuous auditing is a socially constructed phenomenon with embedded sociotechnical processes. Burrell and Morgan (1979:19) and cited by Ansen j (2014:27) contend that the pattern of an interpretive scheme is formed by a quest to understand the world as it is as well as to be knowledgeable about the vital nature of the social world at the level of subjective experience. Larkin, Clifton and Watts (2006:103) also argue that the use of qualitative studies largely involves concentrated and comprehensive analysis of reports produced by a relatively small number of participants on an organisational level. This research was therefore classified by means of the drive behind the research, the research method, the logic of the research, and the conclusion of the research as stated by Collis & Hussey, (2009:3).

Data was gathered and interpreted by means of structured interviews, questions to managers in the organisation. This research will be regarded as descriptive research. For this research, interpretive research paradigm was used as data was gleaned to solve and/or mitigate an identified research problem (i.e. to determine to what extent continuous auditing improves ERP systems and how proper implementation will improve controls and risk assessment therefore making internal audit opinion more reliable), by means of qualitative research techniques alluded to earlier. This research was deemed as applied research since this research entailed the mitigation and/or possible solving of a real life research problem. According to Collis & Hussey (2009), the logic of this research is used to classify the reasoning of the actual research being conducted. Essentially this can be categorized as deductive reasoning (where a theory is tested through means of empirical research).

The initial perceptions of the present authors' stems from existing literatures, which will further be tested by means of empirical research.

Pope May & Popay, (2007) proposes that the view of participants are captured through the use of interviews which will improve as well as create new knowledge of the social phenomena. This finding is supported by (Harker & Twum-Darko, 2015) maintaining that the analyses of participant's is received and analysed through the use of interviews and the close involvement of the researcher produces an empathetic understanding of the social phenomena in order to create new conceptual and theoretical understandings of the phenomena. Qualitative methods of analysis are criticized in terms of their reliability, validity and the researcher's subjectivity. The purpose of this approach is to explore the problem within the case thoroughly in order to understand the social phenomena. Participants' views were communicated with the use of qualitative empirical material. This research was empirical in nature, as it involved interaction with the units of analysis, being the managers in the selected organization (Leedy & Ormrod, 2001:105).

4.1.2 Research Approach

Qualitative studies usually employ the use of inductive research approach together with a theoretical framework. Due to the nature of inductive research approach, the data collection was not guided by the theoretical framework but the research was guided by the data. Braun & Clarke, (2015:12) explain that inductive analysis is a thematic analysis that is data driven. Therefore, the procedure of coding data without trying to fit it into an already existing coding frame is an inductive analysis. Qualitative research creates a general understanding of rich, contextual, and generally unstructured, non-numeric data. Mason, (2002) cited in (Ponelis, 2015:1) draws from the knowledge of Mouton & Myers(2009). Advocating the view that the use of case study approach in research enhances the researchers' ability to establish a rapport with the research subject, the "how" and "why" questions is the major focus therefore making it suitable for a descriptive or exploratory research. William (2006) argues that most social research includes of both inductive and deductive reasoning processes at some time in the project. Inductive reasoning

which is sometimes called the "bottom up" approach starts with specific observations and processes to detecting forms and regularities then formulation of some uncertain hypotheses can be explored, and finally end up developing some general conclusions or theories. In essence, the bottom up approach works from the specific to general (Data and theory). Deductive reasoning which is sometimes called the "top down" approach begins with deciding a theory about our topic of interest then narrows the theory so that it can be tested. This research employs, to a certain degree, some deductive analysis however; the aim is not to develop a theory from the data neither is it to work from pre-existing themes. Rather the aim is to explore the factors inductively. Structuration theory employs the use of in deductive analysis to conceptualize the elements and describe them in connection with each other. This goes in hand with the interpretive case study research strategy employed in the following section.

4.1.3 Research Strategy

Soy (1997), describes case study as a research that thrives at making the understanding of a complex issue or object simple and can extend experience or fortify already conceived knowledge through previous research. Case studies highlight thorough background analysis of a restricted number of events or environments and their relationships. Similarly, Baxter & Jack (2008:543), argue that using a range of data sources to examine a phenomenon is a qualitative case study method. Therefore, themes are explored through different lenses rather than through one lens. This enables multiple surfaces of the phenomenon to be exposed. Laws & McLeod (2006:4), the conduction of majorly qualitative analysis is a case study research process. This system is frequently used by the researcher when unpredictable areas of interest are difficult to control and manage. According to Laws et al (2006:2), Interpretive scheme goes in hand with qualitative research. This research is categorized as an interpretive case study because it is theory orientated.

4.1.4 Research Design

Burns and Groove (2001:374) defines exploratory research as a research that is performed to gather new perceptions and ideas of the phenomenon. This expresses

the reason for an exploratory research that discovers how ERP affects continuous auditing. The aim of a case study research is to "explore a modern-day phenomenon within the actual context, especially when the boundaries between phenomenon and context are not clearly evident". Yin (1994:13) cited in Laws et al (2006:6). An exploratory study was needed in this case given that there is insufficient literature that addresses the implementation of continuous auditing with the use of ERP systems, using structuration theory to understand the social phenomenon of continuous auditing.

According to Meurer, Frederiksen, Majersik, Zhang, Sandretto & Scott (2007) Common qualitative research methods consist of conducted interviews, focus groups, and projective methods which allow exploration of the main scope of a problem while providing access to better understanding of participant incentives as well as detail on participant behaviour and attitudes. Frechtling, (2002) indicates that using interviews as a data collection method is done with the assumption that the participants' perceptions are meaningful, comprehensible, and are unambiguous, and that their perceptions will influence the success of the project.

4.2 Overview of Case Study

4.2.1 Background

The selected organization is the metropolitan municipality which governs Cape Town South Africa's suburbs and exurbs. The organization merged from having six municipalities to one major unit. This has made providing services and monitoring processes easier and quicker. The selected organization provides services such as health, housing, road and traffic safety, water, electricity, wastewater and sewerage systems to all residents of the city. With over 30 departments, the organizational structure is vastly hierarchical, comprising of numerous levels of administration within relevant departments. These various departments perform unique functions and are equipped with qualified staff members who are expert at those specific functions.

4.2.2 Unit of Analysis

The population of the selected organization included managers and team leaders of the IT and internal auditing department. The selected organization makes use of an ERP system that integrates all operational units and functions onto a single system that serves the entire organization. Participants were selected based on their level of expertise and knowledge of the system. Various levels of expertise and tenure were used as selection criteria by the researcher so that the comprehensive view of how the ERP system works to enhance continuous auditing will be obtained. Although each department has over twenty employees, the more experienced employees are those in managerial and leading positions as they have more experience in the field. Junior employees have little experience with managing the system and did not possess the expertise needed by the researcher to obtain in depth knowledge of the system. Hence, the participants were selected based on a mutual element being the degree of knowledge and expertise possessed, relevant to the objectives of this research.

4.2.3 Sampling Methods

Zikmund (1997) terms a targeted population as a group of people with specific knowledge that is relevant to a particular research study. Therefore, the population of this research study was that of the senior, middle managers and a team leader in the IT and internal auditing department.

4.2.4 Sampling

"Purposive sampling is an example of non-probability sampling" (Kruger & Welman, 2001). Tongco (2007:1) Drawing from the knowledge of Bernard (2002) and Bernard et al. (1986) remarks that data gathering is important in research, as the data is gathered in order to contribute to a better understanding of a theoretical framework. Therefore, it becomes imperative that choosing how data will be obtained and from whom the data will be received from should be done with sound judgment, especially since no amount of analysis can make up for improperly collected data. According to

Tongco (2007:1) "The purposive sampling technique is a type of non-probability sampling that is most effective when one needs to study a certain cultural domain with knowledgeable experts within. Purposive sampling may also be used with both qualitative and quantitative research techniques. The sample consisted of twelve managers six from each department. The sampling method used is purposive, Middle managers, senior managers and team leaders were selected to participate in the research".

4.3 Instrument Design

The data collection method selected for the purpose of this study was a semi structured face to face interview. This method was appropriate for this research since the nature of the research was to establish the perceptions of ERP systems and continuous auditing by different role players within the organization. The interviews contained questions about ERP systems, continuous auditing, internal controls, information systems and technologies. The focus was on continuous auditing in relation to ERP systems, automation, and monitoring and performance management.

Ghauri & Grønhaug, (2005) made mention of three types of interview questions which are:

a) structured questions: both questions and answers are predetermined,

b) Unstructured questions: questions have already been pre-set, but the answers have not been determined yet, and

c) Semi-structured questions: the questions have been pre-set, but the answers are not.

In this case, the interviewees may respond to questions using their own words. Since this research is aimed at exploring and determining the role ERP systems play in enhancing continuous auditing, semi-structured questions were the best option for the interviews. Although, certain new questions came up during the interview, apart from the predetermined questions that were put together prior to the interviews, the new questions which arose were simply used to probe for more detail or understanding of the answer. These questions did not deviate from the main

predetermined interview questions which were centred on the concepts of structuration theory and the enactment of technology in practice. Semi structured interviews gives room for flexibility, which enables the interviewer to adjust the formulated questions according to the different backgrounds of the respondents as well as allow the interviewer to clarify vague responses. The use of face-to-face interviews gave the opportunity to explain the questions in order to improve the precision of the responses and to obtain comprehensive understanding where the researcher probed for more detail.

4.4 Design of interview

The design of the interview questions was based on the gaps that were identified from the literature review. In addition, the conceptual framework helped to guide the interview questions. This means that the questions were constructed according to the structure of the conceptual framework. Questions asked were based on major factors that were drawn from the literature review which are technology and social and factors. Structuration also guided researcher in compiling questions. Therefore, the theory enabled the researcher to view the above listed factors in relation to each other so as to understand what should be addressed in the research. Social and technological factors in this research are analysed using structuration theory as a theoretical lens. The concepts of structuration theory were used to develop the questions. Defining these factors in advance when compiling the interview instrument is essential so as to ensure that statements made will fit into the categories created. The theoretical concepts of structuration theory were used to develop categories. These categories were established deductively.

4.5 Process of Data Collection

Prior to the commencement of the interview, the interview schedule was piloted with two senior managers from the population to ensure its validity. As explained by Gill, P. Stewart, K. Treasure, E. & Chadwick, B. (2008:1) "As in any research, it is often preferable to first pilot the interview schedule on several respondents prior to data collection proper. This allows the research team to establish if the schedule is clear, understandable and capable of answering the research questions and if, therefore,

any changes to the interview schedule are required". The pilot ensured that the questions were presented at a level that is appropriate for the characteristics of the interviewee. The questions were clear and unambiguous. It is essential to put into consideration an interview schedule that asks questions which will lead to getting sufficient information about the phenomenon of study. This will also be able to address the aims and objectives of the research (Gill P., et al 2008:2). Therefore, prior to the commencement of the interview, the concept of the research aim and objective were explained to the respondents. Gill P., et al (2008:2) argued that what qualifies as good questions in a qualitative interview, should be open-ended, that is questions that entail more than a yes/no answer, neutral, sensitive and understandable. They further highlighted that, in order to easily gather information, it is more appropriate to start by asking questions that can easily be answered before addressing more complex ones. This helps build a rapport with respondents and builds an effective communication line with each respondent. This will inevitably help generate adequate information which subsequently improves the interview further. So as to allow the participants to speak freely, some interview sessions were longer than others, ranging from about ten to twenty minutes. In total, twelve interviews were completed.

English language was used as a medium of communication to conduct the interview. The main method of capturing the interview responses was through a voice recording application, however, the researcher also captured some responses by writing them down and later replayed the recordings to ensure that nothing was omitted and that all answers were completely captured. Since the interview questions were guided by the theory used in this research, the responses at a later stage were mapped to the concepts outlined in this framework, the responses from respondents were summarized as they were received. Given that the interview was semi-structured, respondents were allowed to speak freely which gave room for some responses to be irrelevant to the research. However, the researcher picked out what was relevant for this research by filtering responses into summaries. This helped to prepare the data for analysis into categories related to the concepts of the theory used in this research.

4.6 Data Analysis and Validation

4.6.1 Analysis

Betterevaluation.org, (2011:2) explains that the process of performing qualitative data analysis involves constant critical reading and interpreting as well as being able to reach a mutual understanding of data collected. Hence, the process does not occur in a linear form. Therefore, data analysis was conducted following the steps of organizing data collected, summarizing it and interpreting it. "Valid analysis is greatly supported by data displays that are fixed to permit viewing of a full data set in one location and are systematically arranged to answer the research question at hand." Huberman and Miles (1994:432) cited in (O'Connor & Gibson, 2003:67). After data has been organized, the researcher identified words and phrases that were frequently used by the participants. The words and ideas often used by the participants were organized into codes. According to Marshall and Ross, (1995: 114) cited in O'Connor & Gibson, (2003:68) explain coding as a process of Identifying relevant themes, repetitive ideas or language, and patterns of belief that link people and settings together as coding. They further argued that it is the most intellectually interesting phase of the analysis and one that can integrate the entire endeavour. Summarizing was done by grouping similar coded categories together in relation to the concepts that emerged from the interviews. The conceptual framework was used as a lens for interpretation. The coded data were related to the conceptual framework concepts.

4.6.2 Analysis Technique

Hsieh & Shannon (2005:1) points out that content analysis is a widely used qualitative research technique. Current uses of content analysis show three different approaches namely: conventional, directed, or summative. Rather than being a single method, all three approaches are used to understand the meaning from the content of text data and hence, comply with the naturalistic paradigm. A summative content analysis comprises of counting and assessing keywords or content, followed by the interpretation of the core context. Given that the research approach used by the researcher is interpretive, data collected was summarized and sorted using coding procedures. Berg (2007:259) as cited by (Harker & Twum-Darko, 2015)

contend that the major constraint to content analysis is centred around outlining important messages for analysis which is mostly applicable to a study that makes use of content analysis as a research strategy, rather than an analysis tool which could be an already recorded message. Additionally, the importance of interpretive and exploratory in relation to content analysis is more generic. Benefits relate to cost effectiveness and little requirements for analysis materials. This research however did not experience such limitation as interview data was analysed.

4.6.3 Reliability and validation

The consistency of the research findings is reliability. In other to achieve consistency, thorough efforts in attaining uniformity throughout the interviewing and analysis process are essential. As stated by Kvale (1996) cited in O'Connor & Gibson(2003:72). Brink (1993:35) buttresses this point by stating that reliability is the capability of a research method to consistently produce similar outcomes over frequent testing sessions. Hence, it involves using similar or equivalent procedures to obtain similar results each time the procedures are used on similar or equivalent subjects. Therefore, consistent responses or habits have been developed.

According to Silverman (2006) cited in (Harker & Twum-Darko, 2015), proposes some measures that can be used to certify the reliability of a qualitative research. These measures include; a comprehensive description of the research processes which was carried out. This will be addressed in chapter 5. Secondly, research reports must be clear and should evidently display the observations made which led to the results. This is also addressed in chapter 5.

"Validity determines whether the research truly measures that which it was intended to measure or how truthful the research results are."Golafshani (2003:599). The validity of this research was ensured by establishing transparency during data analysis and consequent interpretations. Schopper et al (1993) and Goodwin et al (1987) cited in O'Connor & Gibson (2003) all agree that validation is the accurately measuring and assessing a process, which produces information that truly represents "reality". Validation is not a detached phase of the exploration; it is

however, a continuing standard that should be followed all through the research process.

4.7 Ethical Considerations

This research was undertaken in an ethical manner to protect all participants as well as the selected organization. A consent letter was obtained from the executive director for corporate services and compliance of the organization to conduct the interviews with managers and team leaders (see Appendix). Saunders, Lewis and Thornhill (2000:130) cited in Irakoze, (2013:63) both hold the position that ethics is the appropriateness of the researchers behaviour in relation to those who become the subject of their work or are affected by it". The cover page of the interview sent to respondents (see Appendix A) clearly stated the ethical considerations of the research, also assuring the participants of their anonymity, indicating that participation in the research was voluntary, participants may withdraw from the research at any time and that the data collected via the research instrument will be treated with full confidentiality. Ethics clearance was obtained from the institution before data collection commenced. Furthermore, all participants who agreed to participate in the data collection were informed of the ethical consideration before going ahead with the interview.

Participants were informed prior to the commencement of the interview that they would be recorded in other to get a broader view of the questions asked. Personal confidential data was not collected during the interview as this was not needed for the research. The identity of the organization is also kept confidential to prevent private information from being exposed. The reliability of the information and results presented in this research is demonstrated by adequate, comprehensive and proper referencing of all sources referred to in the research and the transparency of all the processes used in the analysis of results, which are examined and explained in detail.

4.8 Chapter Summary

Table 4.1: Summary of Chapter 4

PROBLEM:
Based on the study of Pairat & Jungthirapanich (2005:28) and subsequent reported evidence, the research problem was highlighted: The primary role of an ERP is to support business activities. It is designed to incorporate all units and functions within an organisation. The aim then is to investigate the role of continuous auditing and how it influences performance management using Enterprise Resource Planning (ERP) in a selected organization.

MAIN RESEACH QUESTION:
How can continuous auditing improve performance management?
The following research questions have been derived to address the objective of the research;

Investigative Questions	Purpose	Method
What effect does ERP have on continuous auditing?	To identify the importance of ERP in continuous auditing.	Interview question guide are sent to all participants before the interview process. All research participants must answer all questions related to their department.
How does continuous auditing influence efficiency and effectiveness of operations?	To determine how continuous auditing influences performance management	As above
How often do organizations use continuous auditing to measure business performance?	(CAD-PM) framework.	As above

APPROACH TO THE RESEARCH :

Philosophy: *Interpretivism*

Approach: *Qualitative*

Data collection: *The data collection instrument is a survey questionnaire and data will be collected from interviews of management staff in the internal audit and ERP department*

Data analysis: *Recorded interviews will be transcribed and analyzed.*

CHAPTER 5

FINDINGS AND DISCUSSIONS

5.1 Introduction

The previous chapter discussed the research approach applied in this qualitative research. This chapter deals with the research findings and discussions of the analysis of the results of the qualitative interviews. These findings were based on results from the data collection described in chapter four and guided by the conceptual framework. The results of the interviews with participants from the selected organization are discussed here. The data are analysed based on the research questions posed, exploring the different classes and themes that have been obtained from the literature review and any other themes that are revealed in the interviews, as well as the concepts of enactment of technology in practice (ETiP). In presenting the research findings, references are also made to literature reviewed and previous research which could be in support or in contradiction to these findings. This research set out to determine the role ERP plays in enhancing continuous auditing using ETiP of structuration theory as a theoretical lens to explore continuous auditing processes with ERP. The main thrust of this research which was previously outlined is continuous auditing which constitutes constant control appraisals to continuous risk assessments regularly in an organization, monitoring controls, risk management and governance processes.

No identical research has been done. Therefore, no study has projected identical results similar to that which is projected in this research for the academia perspective. The literature provided the basic knowledge in order to establish the main concepts of the research. The concepts focused on the predominant aspects of the literature that influence continuous auditing in organizations. The main research objective was to explore the role that ERP plays in supporting continuous auditing to improve performance management. The first research question was to determine

what effect ERP has on continuous auditing. The second question sought to understand how continuous auditing influences efficiency and effectiveness of operations while the third question sought to investigate how often organizations use continuous auditing to measure business performance. Elements which developed from the research that assists in answering the three research questions would provide an understanding on how continuous auditing can improve performance management in an organization.

5.2. Process of Analysis

Devlin (2006:196) describes content analysis as classification of written responses through the use of reductive systematic analysis. Hsieh & Shannon (2005:1) further argue that content analysis involves comparing and counting keywords and subsequently interpreting the underlying context. This statement was supported by Meyer (2014:1) who also stated that Content analysis refers to "a general set of techniques useful for analysing and understanding collections of text". The transcripts were analysed using content analysis technique as well as the theory approach used in this research. Devlin, (2006) recommendation of processing and analysing data which was used by Harker, (2015) as well as Huberman & Miles (2002) method for analysing qualitative data used by Theng et al (2008). This approach has also been used by theorists (Glaser & Strauss 1967; Charmaz 2003). A combination of these approaches will be used in this research to analyse data.

These steps are listed below:

(a) Any first impressions about the data by browsing through the transcripts and highlighting themes which were emerging.

(b) The organized lists of data were then categorized by reading again and highlighting relevant words, phrases or sentences. This constituted the level of sampling.

(c) Passages of data were categorized and connected to the themes so that similarities are easily identified. Larger themes were identified and defined as necessary.

(d) In this research, coding was dependent on: something that was repeated in several places, anything that the interviewee explicitly stated as important and themes identified in the literature.

(e) Categories were conceptually organized; which means that similarities, differences and relationships among the categories were understood.

5.3 Results

The researcher projected certain factors that could influence the implementation of continuous auditing in an organization. This research exploits a unique way of exploring the influence of continuous auditing in performance management and the influence of ERP in continuous auditing. Prior to the commencement of this research, the assumption was that implementation of ERP helps enhance continuous auditing which improves organization performance. The research confirmed this assumption as it was revealed that the ERP system provides access to all information within the organization to enhance continuous auditing. The second major finding is that the ERP system does not monitor performance management. This area hasn't been implemented yet as a lot of performance review is captured manually however, from the functional perspective of performance, it monitors gaps identified.

Other major findings are that the system flags risks but does not necessarily highlight control to mitigate the risk flagged. Although the use of continuous auditing helps enhance business process, these processes are not reviewed often. The following sections report on the factors related to each of the four research questions:

5.4 Discussion: Structure as continuous- auditing- in- practice

The interactional system in this study is the link between human activity, the system and the structure. The finding which supports the literature review reveals that, there is a direct link between continuous auditing and the ERP where information from the system is pulled using a tool. The system grants access to all information they need in order to carry out automated audits. Having access to this makes continuous auditing more efficient as all the data is in one place and can be retrieved easily which helps in achieving efficient audit result. Kuhn & Sutton (2010:109) state that

regular use of the ERP system grants improvement of the organisations infrastructure that is required for provision of effective assurance. Through the integration of the ERP system with CA applications, the assurance function evolves from periodic events to a regular process.

Pairat & Jungthirapanich, (2005:28) state that ERP systems are packaged business Software systems, which have the ability to distribute information as well as have access to the data output immediately. The feeling from the respondents is that the continuous auditing process enables transparency of all processes as well as accessibility. If a system is not configured or set up according to the business process then it is flagged.

5.4.1 The effects of ERP on Continuous Auditing

This discussion in this section is centred around the findings from the data and literature analysis that answers the question to the effects of ERP on continuous auditing.

The literature analysis supports the findings of this study and reveals that proper implementation and the integration of continuous auditing with the system leads to more effective audit results. Managers stated that since the implementation of the ERP, all reports are integrated into one system which makes it easy for auditors; the system also grants them immense access to all data types which helps to enhance the internal and continuous auditing process. When the participants were asked "*What are the effects of ERP on continuous auditing?*" Respondents stressed that the system provides accessibility and integration of data under one roof which makes continuous auditing process easy.

Table 5.1: Effect of ERP on Continuous Auditing

Effects of ERP on Continuous Auditing					
Question	Respondents				
	Strongly Agree	Agree	Not Applicable	Disagree	Strongly Disagree

Organisation practices CA	20	0	0	0	0
CA is an important function to have in an organisation	20	0	0	0	0
PM is effectively monitored with CA	15	5	0	0	0
CA is effective in monitoring individual performance	0	3	15	2	0
CA enhances control efficiency	15	5	0	0	0
ERP plays a role in enhancing CA	20	0	0	0	0

The table above depicts participants' perception regarding the effect of ERP on continuous auditing. From the Table 1.5 above, it is established that ERP system plays a major role in continuous auditing especially with organisations that practice continuous auditing.

Fifteen (15) respondents indicated that with continuous auditing in practice with ERP system environment, performance management is effectively monitored. However, five (5) participants did not share the same opinion due to the fact that they have not effectively implemented continuous auditing.

Three (3) participants specified that continuous auditing is used in the organisation to a certain degree to monitor individual system performance, although not all departments continuously monitor individual system performance as depicted in the table 5.1 above, fifteen (15) participants' state that continuously monitoring individual system performance is not applicable while two (2) participants disagree with continuously monitoring individual system performance due to improper adoption of the ERP system. Participants concur that with continuous auditing in place, control efficiency is improved and all participants specified that ERP plays a huge role in enhancing continuous auditing.

The Table 5.1 above therefore indicates ERP has positive influence on continuous auditing as long as there is proper integration of the continuous auditing process and the ERP system is achieved.

GO: So it actually made everything much easier. It is of a, like I said a press of a button and the information is real time. Basically what the ERP has done is brought everything together. So that it's all integrated, everything is integrated.

The primary role of an ERP is to support business activities. It is aimed at integrating all departments and functions within the organisation onto a single computer system that can serve all those different departments' particular needs Vliet, (2011:6). The findings, supported by the literature review reveal that the ERP system allows for the organisation to configure the system in alignment to how the organisation runs and how high productivity can be best achieved using the system. The performance of ERP systems depends entirely on how it is installed, configured and rolled out. When effectively installed, the system could enhance performance and better information gathering (Dlodlo,2011:68,1).

When the question of ERP integration effect on continuous auditing was asked, the following response was received from a line manager*;*

RA: The access we have been granted to the system is effective to all data type. As long as we know the table name, we can basically put in the information put in the period you want.

From the response received, it is evident that ERP does help drive/facilitate continuous auditing depending on how the organisation decides to implement both systems. This is not to say ERP has to work with continuous auditing for continuous audit implementation to work. However, it does support continuous auditing and makes it easier for the internal audit team to access data. With the implementation of ERP managers explain that, working methods have become faster and simpler, it also helps with monitoring management activity. Since the ERP system grants easy access to data, this helps in making the organisation transparent which in turn helps the organisation become more effective and efficient. The findings from the questionnaire reveal that being able to audit real time processes increases the chance of fixing errors detected by the system as soon as it's flagged. Malaescu &

Sutton, (2013:12) on knowledge gained from Conceptual Framework for Financial Reporting Accounting & Board, (2010) and COSO framework Mcnally, (2013) explains that in a continuous audit environment, financial information and controls associated with it are audited on a continuous (real time) basis, which increases both the timeliness and verifiability of the financial data as any inconsistencies are reported and are fixed as they are detected, in accordance with the effective internal control principle of information and communication. When ERP is carefully conceived and successfully implemented, it can improve the way companies conduct business for the better. Ehie & Madsen (2005:555) argue that successful implementation of ERP drives "continuous monitoring and self-diagnosis throughout the implementation process."

When the question of ERP integration effect on continuous auditing was asked, the following response was received from Managers;

SC: So I think, since we implemented it or since we actually started the ERP program we streamlined a lot of processes, I think ERP streamlines with the management team and then transparency was also something that we brought in and everything is open and people can see also of course there is a little bit of restriction of some salary stuff.

TT: People often say that, you implement ERP and you have to change your business but it's actually the other way round so there is an element of neglect SAP comes with pre-configured modules and in adopting these pre-configured modules or business processes, you may have to change certain standard operating procedures.

TT: If the system hasn't been configured or set up according to the business processes then it's flagged with a red flag and we are called in to analyse and have a look at the mitigating factor and the proposed action.

This process helps improve the organisations operations which in turn affects the organisations performance. Better and accurate audit report will be achieved. Since continuous auditing supports a larger coverage area, the system allows for auditing an entire set of data more regularly as opposed to doing samples. This means

having more effective audit results. The findings from the responses show that ERP streamlines a lot of their processes and carefully outlines and monitors all those processes. This in turn aids the continuous auditing since all business processes can be monitored easily in real time.

When the question does ERP help implement continuous auditing in your organization was posed, the following was the response of a manager*;*

TT: The system has got a check; we call them validation so we've got hundreds of validation built into the system to ensure audit compliance. So that's definitely something you can note in your report, that in the system, we build in validation rule to ensure compliance to audit requirement.

5.5 Discussion: Action as compliance and enforcement

Based on the findings, it was established that the ERP systems acts as a structural property used to define the organizational setting. All processes get recorded on the ERP system and all data is retrieved from the ERP system. Providing uninterrupted access to information and transparency of information throughout the enterprise is an attribute of the ERP system (Dlodlo, 2011:1).

These findings revealed that the ERP system enhances business activities and operations; it integrates all business functions and processes onto one system which reaches the specific needs of all departments.

To achieve maximum output from the system, we provide system capability, we build the ERP application and configure it but we do not own the master data. The software developers take the SAP application and custom develop it using a program language. It is a roles based system so depending on certain roles that is provided to you as an end user, so do you have the ability to use certain data.

5.5.1   Influence on Business Operations

In this section, findings from the data and reviewed literature that answers the question; how does the use of ERP in continuous auditing influence business operations was addressed

Understanding the impact ERP systems have on daily business operations helps managers decide when and under what circumstances ERP should be adopted. Equipped with this information, management can make informed decisions and can then control the opportunities that the ERP system presents. The findings revealed a number of other factors that could influence adopting the process of ERP in continuous auditing within the context of an organization in South Africa, including the key features of the structuration theory framework used in this study.

The findings reveal that ERP systems monitor business processes and gives an overall assessment of the organisation. Ehie & Madsen, (2005:545) explains the function of an ERP system as an integrated software solution that extends across the range of business processes which enables companies to gain a holistic view of

the business enterprise. An important division of continuous auditing is the continuous monitoring of business process controls (Alles et al., 2006:138).

(b) How does the use of ERP in continuous auditing influence business operations?

When the question of does the use of continuous auditing help to enhance business process was asked, the following was a response from a manager;

Respondents state that the system helps to identify gaps once a business process is put through. However, Risks are identified but there are no controls linked to adhere to the risk.

Table 5.2: Continuous Auditing influence on Business Management

CA Influence on Business Management					
Question	Respondents				
	Strongly Agree	Agree	Not Applicable	Disagree	Strongly Disagree
Communication of policies and procedures to staff	20	0	0	0	0
ERP helps facilitate CA	10	10	0	0	0
ERP helps to enhance business process	20	0	0	0	0

The Table above depicts participants' perception regarding the influence of continuous auditing on business management.

From the table above, it is established that continuous auditing enhances business processes as well as helps facilitate continuous auditing.

ERP system actually monitors business processes, for example; employee clock in system. starting from clocking in which is the start of the business process for time and attendance and obviously clocking out is now the end of the business process for the day which is on a day but that accommodates every day which goes into weeks, which goes into months. So oh definitely it looks at all the business processes (GO).

From the findings, it was established that there could be duplication of efforts within the business process. However, the implementation of the ERP system helps erase the issue of duplication. WorkwiseSoftware (2013:3) explain that by the integration of distinct business processes, the ERP system ensures consistency and avoids duplication and incoherence in different parts of the organization. Once the traditional method of retrieving information is eliminated, a new audit process to ensure compliance is created. (SAP, 2015:1) One major purpose of ERP systems is to support business processes in order to increase company's strategic opportunities. Rezaee et al (2001:151) further argue that the elimination of a manual information point due to modification in the organisations business process involves establishment of new audit measures to conduct financial audit.

When the question of does the use of continuous auditing help to enhance business process was asked, the following was a response from a manager;

TT: If you look at all our processes, look at the business process, there has been a business improvement intervention. Previously, we had manual systems and we had duplication of efforts so we would have three or four processes for the same thing. So the ERP SAP system forces them to have one process. One process for everybody in the whole metro in the whole region and the system has been set up for the one process so that has definitely helped get better and be more efficient and effective.

The findings reveal that the major problem faced by the organisation is that the non-flexibility of audit procedures makes it difficult to improve business processes. The system isn't entirely flexible to accommodate certain business rules. However, the system helps by indicating the gaps that have been identified, risks are identified but no controls connected to mitigate the identified risk.

When the question of does the use of continuous auditing help to enhance business process was asked, the following was a response from a manager;

SC: yes and No. again I would say mostly yes but I think there are a little bit of no because sometimes audit can be very rigid. Sometimes they don't really understand what happens outside in the field or in the business.

HB: The system helps; once a business process is put through, it indicates a gap in the system. Risks are identified but there are no controls linked to adhere to the risk.

5.6 Discussion: Action as policies and regulations

Based on the findings, the identified effect continuous auditing has on performance management would be a major influence for organisations to adopt continuous auditing. The findings reveal that Performance is measured through the EPM (Enterprise Performance management) module built into the ERP system. Through this module, allocated task and to whom it's assigned to can be monitored. Tasks that need to be done can also be seen. Nwankpa& Datta, (2016:64) agreeing with Hunton et al,(2004) argue that ERP systems offer changes such as internal control, business processes and segregation of duties particularly influencing the auditors' behavior through business disruption process and the overall internal control process. Also, being able to integrate business processes into one unit and the ability to pull out reports electronically with a press of a button helps effectively monitor performance management. Individual performance could also be viewed depending on the type of processes built into the system by the organization. Ranganathan and Brown (2006) and Fuβ, Gmeiner, Schiereck, & Strahringer, (2007) cited in Dunaway & Bristow (2014:6)   point out that Business performance can improve since the ERP system integrates business processes that navigate multiple business functions, divisions, and geographical locations.

(c) How does continuous auditing influence performance management?
When the question does The ERP system monitor performance management was posed, the following was the response form two line managers;
Respondents indicated that organisation performance is monitored easily through the EPM module. However, individual performance is not automatically monitored.
The table below depicts participants' perception regarding the influence of continuous auditing on performance management. Respondents' stated the importance of configuring the ERP system to align with the organisations policies and procedures in other to achieve optimum success.

Table 5.3: Continuous Auditing Influence on Performance Management

CA Influence on Performance Management					
Question	Respondents				
	Strongly Agree	Agree	Not Applicable	Disagree	Strongly Disagree
Internal auditing standards are adhered to	10	10	0	0	0
Organisation policies and regulations are adhered to	15	5	0	0	0
ERP system set to monitor adherence to policies and regulations	15	3	2	0	0

BC: There is what we call EPM (enterprise performance management) and that is a set of application that we built for the organization to measure performance so we've got something called the mayor dash board which is used to monitor performance.
GO: Yes definitely, an example would be time and attendance. Prior to ERP we you come in and you sign a register for 8 o'clock, you clock in and then out. Now what you do is we have a binary system where you go and you press. And what basically happens now is you just come early in the morning, you press in and you leave and you go out. From there, everything is done electronically.

From the findings, it was established that the system enables the ability to audit real time processes, which increases the chances of fixing errors detected by the system as soon as it's flagged. This process helps improve the organisations operations which in turn affects the organisations performance. Better and accurate audit report will be achieved. Gopalan (2012:4) indicates that due to the technical complication of ERP systems, it is mandatory for auditors to have increased knowledge in computerized information. Organisations operating with enterprise processes emphasises on gaining knowledge of the business processes as to executing regular fundamental tests of controls, putting the application and process controls through

regular checks. Concurrently, auditors need to certify that the system is automating the process accordingly.

When the question does The ERP system monitor performance management was posed, the following was the response form two line managers;

BC: What we have done over the years is to say, provide continuous auditing with this role and come into the system to observe it as it happens on the fly. So when you are auditing a set of realities, it's not retro, not backwards looking its right on the fly and you can raise it that's how IT/ERP interacts with audit for continuous auditing

.

The findings establish that monitoring individual performance is more effective with the ERP system supporting the continuous auditing process. It's easy to identify where improvement is needed. ERP is adopted in many organizations in attempt to improve business performance. Elragal & Al-serafi (2011:2) further argue that firms purchase ERP systems for technical gains or for improving operational performance and efficiency.

SC: I think definitely it has enhanced performance management because now everything is in one place and its one type of process and you can easily see where there is an issue of people who are not performing but also it is easier to identify that performance is people based or is it system based or is it skills based that you maybe you see if you need to do some more training in that area.

5.7 Summary

Table 5.4: Summary of Chapter 5

	Findings and Discussions	
1	Introduction of the chapter	This was provided in section 5.1. The main items that were discussed in this chapter were introduced in this section.
2	Process of analysis	
3	The findings	The research findings were as the researcher expected. Respondents were open in responding to questions posed to them as well as in providing comments and suggestions with regard to the organisations systems and operations. This proves how important this research topic seemed to participants and was discussed in section 5.3

Chapter 6

Conclusion and Recommendation

6.1 Introduction

This research aimed to investigate the integration of continuous auditing and ERP systems in other to adequately understand how they impact organisations' performance. The use of structuration theory was employed as a theoretical guide to explore the factors. The literature provided a background to the main categories of the research. The research categories were created on the basis of the predominant factors in the literature that influence continuous auditing and ERP system. There has been no similar study conducted with no similar emerging results.

The main research objective was to explore the role that ERP plays in supporting continuous auditing to improve performance management. To achieve this objective, three research questions were explored In order to expose how continuous auditing influences Performance management using ERP systems. Interviews were conducted with six managers and six team leaders of a selected organisation in South Africa. The interviews explored the factors inductively which included the views of management in the organisation.

This study concludes that for continuous auditing to be effective in improving performance management, ERP system should be implemented. The successful use of ERP systems depends largely on management and stakeholder engagement in implementation, stating clearly objectives to be met and understanding existing gaps. The rest of this chapter will discuss the research contributions (practical and theoretical) the research limitations and recommendations for future research.

6.2 Re-examining the research problem

The highlighted research problem in this study is as follows; lack of continuous auditing in many organisations has resulted in unproductive use of organisations' time and resource due to increase in data management systems. As many organisations have adopted the use of ERP. However, there has been very little research done on implementation of ERP systems and continuous auditing and how they impact on organisations performance.

The outcome of the data analysis shows that integration of the continuous audit process and the ERP has a great impact on the organisation. Majority of respondents specified that with the help of the ERP system, they are able to get ample access to data needed for the auditing process. Data analysis proves that with the integration of these processes, management can track organisational performance easily. However, the system fairly monitors individual performance.

The outcome of the data analysis shows that integration of the continuous audit process and the ERP has a great impact on the organisation. Majority of respondents specified that with the help of the ERP system, they are able to get ample access to data needed for the auditing process. Data analysis proves that with the integration of these processes, management can track organisational performance easily. However, the system fairly monitors individual performance.

6.3 Re-examining the Research Questions: Main Question

How can continuous auditing improve performance management?
In this study, respondents provided their views on the integration of the ERP system with continuous auditing. Respondents indicated that monitoring organisations performance has become more effective since the adoption of the ERP system and its integration with continuous auditing. Managers can pick up easily where improvement needs to be made. More details can be obtained from sections 5.4; 5.5; and 5.6 of this dissertation.

6.5 Re-examining the Research Objective

From the research findings, the set research objectives stated in section 1.5 of the first chapter were met. In view of the literature reviewed in this study as well as the research results, the results of the study will be presented as a general framework to guide effective continuous auditing. The research will contribute to the existing knowledge on continuous auditing and ERP systems in general in a selected organisation.

(a) Identify the importance of ERP in continuous auditing.

The results obtained from data analysis indicated management's perception on the adoption of the ERP system and providing continuous audit in the organisation and how it has affected performance.

(b) Determine how the use of ERP in continuous auditing influences business operations.

Data analysis result obtained showed the effect that the integration of ERP systems with the continuous auditing process has on business operations.

(c) Determine how the use of ERP in continuous auditing influences performance management

6.6 Research Contributions

6.6.1 General Contributions

One of the objectives of this research was to recommend continuous auditing framework of performance management for organizations. The study debates that the status of the outcome of the combined use of both process and system will determine performance. Since the role of ERP system is to support business activities integrate all departments and functions across a company onto a single computer system that can serve all those different departments' particular needs.

The system is used to store and interpret data from the organisations business activities. The application and integration of ERP systems has both negative and positive impacts on the organisation. Proper implementation and integration of the ERP system provides effectiveness, efficiency and productivity is achieved. A negative outcome can be generated due to unsuccessful implementation and use of the ERP system.

6.6.2 Theoretical contribution

This study used an interpretive case study methodology, to provide relative understanding on the effect of the combined use of ERP and continuous auditing on the organisations performance. Using structuration theory, new perspectives were explored, thereby changing the perception about continuous auditing. The study explored areas of concern that generated a comprehensive view of the peculiarity in the context of an organisation. The theory used by the researcher obligated the study to also consider both human and nonhuman factors of the phenomenon. This research study was conducted by adopting a qualitative approach in exploring the effect the ERP system and the continuous auditing process has on performance management while taking into consideration management perception of ERP and continuous auditing at a selected organisation.

This is the first time, as far as the researcher is aware, that structuration theory has been used as a lens to study ERP and continuous auditing and how it influences performance management in the context of an organisation allowing the theory to be applied beyond the bounds of previous research contexts. The use of interpretive case study methodology together with structuration theory has helped to generate new knowledge and a broader understanding of the study of ERP and continuous auditing from the perspective of an organisation. By applying an interpretive approach, this research looked at how performance management as an ideal can be achieved when integrating both processes to work together. Therefore, this study revealed factors for the development of continuous auditing process to be an important aspect of the study due to continuous auditing being implemented to aid reduction of risk and test to the monitoring system used by management to monitor performance.

Furthermore, respondents revealed that the organisations environment has identified appropriate implementation method that should be adopted, impacting on organisations performance.

6.6.3 Practical Contribution

Data was gathered through semi structured interviews at the selected organisation. The improved understanding of the phenomenon under study can help users develop better strategies and policies; hence a comprehensive general framework explaining the effect of integrating the continuous auditing process with the ERP system was developed to assist in the development and implementation of continuous auditing in organisations. The researcher also makes practical recommendations while considering these factors for implementation by managers.

6.7 Recommendation and Further Research

The process of analysis used for this research was rigorous however; consideration of the findings should be done with care due to certain restrictions of the research. The data used in this research were gathered from one organisation indicating that the results gathered cannot be presented for environments beyond the organisation of investigation. Reproduction of this study for future research could be done in other organisations so as to authenticate these findings and confirm its external legitimacy. Prospective research could also use quantitative techniques to further verify the findings in other organisations. This research only focused on the IT and Internal auditing department. Future studies could look at including other units, as it is evident that they have a general impact on the effectiveness and efficiency of the organisation. The organisation under study has a well-structured ERP system and continuous auditing process as well as integrating both system and process. Therefore, findings may differ from an organisation that does not have an ERP system and a continuous auditing process. For future studies, a comparison between the factors that emerge from such organisations with those organisations that have a well-structured ERP system and continuous auditing process as well as integrating both system and process should be done.

Due to the originality of this research and the limited use of structuration theory as a regulatory structure in a study concentrating on ERP and continuous auditing, additional studies should explore these factors to verify if they are actually related to this scenario or if there are other factors that intersect between various organisations. Future studies could also apply the same method using the setting of

an academic institution so as to determine if the same research instrument will produce similar or different results for a different context.

6.8 Chapter Summary

Table 6.1: Summary of Chapter 6

CHAPTER SIX: CONCLUSION AND RECOMNDATION		
1.	Introduction of the chapter	Introductions to the main items were discussed in this chapter.
2.	Re-examining the research problem	The research problem was revisited in this chapter to explain how the problem was solved within the course of this study.
3.	Re-examining the research questions	In this chapter, The research questions were revisited to explain how they were answered within the course of this study.
4.	Re-examining the investigative question	This Chapter revisited the research investigative questions to explain how the investigative questions were answered within the course of this study
5.	Re-examining the research Objectives	The research objectives were revisited to explain how they were met within the course of this study.
6.	Research Contribution	Contributions of the research were discussed in this chapter.
7.	Conclusion	A conclusion provided an encompassing statement about this research.

References

A. Elragal, A. & M. Al-Serafi, A. 2011. The Effect of ERP System Implementation on Business Performance: An Exploratory Case-Study. *Communications of the IBIMA*, 2011: 1–20.

Ahmad, M.M. & Cuenca, R.P. 2013. Robotics and Computer-Integrated Manufacturing Critical success factors for ERP implementation in SMEs. *Robotics and Computer Integrated Manufacturing*, 29(3): 104–111.

Alles, M., Brennan, G., Kogan, A. & Vasarhelyi, M.A. 2006. Continuous monitoring of business process controls: A pilot implementation of a continuous auditing system at Siemens. *International Journal of Accounting Information Systems*, 7(2): 137–161.

Alles, M.G. 2008. into Practice: Lessons from Two Pilot Implementations. , 22(2): 195–214.

Ansen jerry. 2014. Information Security Management in a Human Resource Information System of a Selected University of Technology. , (April).

de Aquino, C.E. 2008. Six Steps to an Effective Continuous Audit Process. *IIA*: 1. https://iaonline.theiia.org/six-steps-to-an-effective-continuous-audit-process.

Aryani, A.. & Krismaji. 2012. Critical Success Factors (CSFs) for TQM Implementation: Current Status and Challenges in Libyan Manufacturing Companies. *GSTF Journal on Business Review*, 2(1): 71–79. http://dl.globalstf.org/index.php?page=shop.product_details&flypage=flypage_images.tpl&product_id=1895&category_id=81&option=com_virtuemart&Itemid=4.

Asemeit, C. 2014. THE EFFECT OF RISK MANAGEMENT ON FINANCIAL PERFORMANCE OF INSURANCE COMPANIES IN KENYA BY A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN FINANCE , THE UNIVERSITY OF NAIROBI . , (October).

Auditing, C. 2010. Internal Audit Practice Guide. , (May).

Bae, B. 2004. Implementation of ERP Systems: Accounting and Auditing Implications. , (June).

Baxter, P. & Jack, S. 2008. Qualitative Case Study Methodology: Study Design and \r\nImplementation for Novice Researchers. *The Qualitative Report 544-The Qualitative Report Volume 13 Number 4 December 2008* , 13(4): 544–559.

Betterevaluation.org. 2011. Equal Access Participatory Monitoring and Evaluation toolkit Module 5: Doing qualitative data analysis. *Equal Access Participatory Monitoring and Evaluation toolkit*: 1–19. http://betterevaluation.org/sites/default/files/EA_PM&E_toolkit_module_5_QDA_ for_publication.pdf.

Braun, V. & Clarke, V. 2015. Using thematic analysis in psychol- ogy. Qualitative Research in Psychology. *Statewide Agricultural Land Use Baseline 2015*, 1: 77–101.
http://www.informaworld.com/smpp/content~db=all~content=a795127197~frm=ti tlelink.

Brink, H.I. 1993. Validity and reliability in qualitative research. *Curationis*, 16(2): 35–38.

Chan, D.Y. & Vasarhelyi, M.A. 2011. Innovation and practice of continuous auditing. *International Journal of Accounting Information Systems*, 12(2): 152–160.

Coderre, D. 2005. Continuous Auditing : Implications for Assurance , Monitoring , and Continuous Auditing : Implications for Assurance ,.

Coderre, D. 2007. Internal Audit Practice Guide. , (May). http://centerforcontinuousmonitoring.org/wp-content/uploads/2011/01/Internal-Audit-Practice-Guide-for-Continuous-Auditing-Dave-Corderre.pdf.

Coetzee, P., du Bruyn, R., Fourie, H. & Kato, P. 2012a. *Internal Auditing, An Introduction*. 3rd Editio.

Coetzee, P., du Bruyn, R., Fourie, H. & Kato, P. 2012b. *Perfroming Internal Audit Engagement*. 3rd Editio. E. Smit & L. Bisschoff, eds. LexisNexis.

Collis, J. & Hussey, R. 2009. *Business Research: A Practical Guide for Undergraduate and Postgraduate Students*. 3rd ed.

Council.ca, H. Keeping the Right People Performance Management.

Daujotaitė, D. 2013. INSIGHTS ON RISK ASSESSMENT IN PERFORMANCE AUDIT. , 3(2): 220–232.

Davenport, T.H. 1998. Putting the Enterpirse into the Enterprise System. *Harvard Business Review*, (February 2012): 1–12. papers3://publication/uuid/9C5C7E6F-B9DD-4FA4-83F3-57CAEE62263E.

Devlin, A.. 2006. *Research Methods: Planning, Conducting, and Presenting Research*. 1st ed. Belmont, CA : Thomson Wadsworth, cop. 2006.

Dlodlo, J.B. 2011. Enterprise resource planning in manufacturing SMEs in the Vaal

Triangle by. , (November): 1–78.

Dunaway, M. & Bristow, S. 2014. Importance and Impact of ERP Systems on Industry and Organization. *Calstatela.Edu.* http://web.calstatela.edu/faculty/pthomas/sap/Readings_on_ERP_chapter01.pdf .

Ehie, I.C. & Madsen, M. 2005. Identifying critical issues in enterprise resource planning (ERP) implementation. , 56: 545–557.

Frechtling, J. 2002. An Overview of Quantitative and Qualitative Data Collection Methods. *The 2002 User-Friendly Handbook for Project Evaluation*: 43–62. http://www.nsf.gov/pubs/2002/nsf02057/nsf02057.pdf.

French, D. 2011. Continuous Audit : Technology Enabled Continuous Assurance ' Challenging Assumptions with Practical Experience ' A White Paper prepared for the ISACA North American CACS. In 1–18.

Ghauri, P.N. & Grønhaug, K. 2005. *Research Methods in Business Studies: A Practical Guide.*

Gibbs, B. j. 2010. Structuration Theory. *Britanica.* https://global.britannica.com/topic/structuration-theory.

Giddens, A. 1984. The Constitution of Society Elements of the Theory of Structuration. : 1–28.

Gill, P. Stewart, K. Treasure, E. Chadwick, B. 2008. Methods of data collection in qualitative research: interviews and focus groups. *British Dental Journal 204.* http://www.nature.com/bdj/journal/v204/n6/full/bdj.2008.192.html 14 June 2016.

Golafshani, N. 2003. Understanding reliability and validity in qualitative research. *The Qualitative Report*, 8(4): 597–607. http://www.nova.edu/ssss/QR/QR8-4/golafshani.pdf.

Gopalan, R.. 2012. Knowledge Management Series Internal Audit in ERP Environment. *G BALU ASSOCIATES Knowledge Management Series*, VOL–1(ISSUE-5).

Harker, L.-A. 2015. FACTORS INFLUENCING KNO WLEDGE SHARING AT A SELECTED TERTIARY INSTITUTION IN SOUTH AFRICA.

Harker, L.-A. & Twum-Darko, M. 2015. *FACTORS INFLUENCING KNO WLEDGE SHARING AT A SELECTED TERTIARY INSTITUTION IN SOUTH AFRICA.*

Hsieh, H.-F. & Shannon, S.E. 2005. Three Approaches to Qualitative Content Analysis. *SAGE Journals.*

http://qhr.sagepub.com/content/15/9/1277.short?rss=1&ssource=mfc 15 June 2016.

IASB, Accounting, I. & Board, S. 2010. *Conceptual framework for financial reporting 2010*. www.ifrs.org.

Irakoze, J.M.V. 2013. THE EFFECTS OF INFORMATION SYSTEMS ON END-USERS AND THE ORGANISATIONAL PROCESSES AT A UNIVERSITY OF TECHNOLOGY by. *Journal of Chemical Information and Modeling*, 53(9): 1689–1699.

ISACA. 2003. Is Auditing Guideline Enterprise Resource Planning (Erp). *Information Systems*.

Janvrin, D., Lowe, D.J., Hackbarth, G., Hodge, F., Jeffrey, C., Johnson, E., Mascha, M., Donnell, E.O., Pany, K., Premkumar, G.P. & Finally, T.T. 2008. Auditor Acceptance of Computer-Assisted Audit Techniques.

John, V. 2009. Improving Internal Audit Through Technology. : 1–4.

Kholeif, A., Abdel-Kader, M.G. & Sherer, M. 2007. ERP customization failure: Institutionalized accounting practices, power relations and market forces. *Journal of Accounting & Organizational Change*, 3(3): 250–269. http://dx.doi.org/10.1108/18325910710820292%5Cnhttp://www.emeraldinsight.com/10.1108/18325910710820292.

Kocaoglu, B. & Acar, A.Z. 2016. Developing an ERP Triggered Business Process Improvement Cycle from a Case Company Developing an ERP Triggered Business Process Improvement Cycle from a Case Company. , (March).

Kpmg. 2012. Leveraging Data Analytics and Continuous Auditing Processes for Improved Audit planning, Effectiveness, and Efficiency.

Kruger, S.. & Welman, J.. 2001. *Research Methodology*. 2nd ed. South Africa: Oxford university press.

Kuhn, J.R. & Sutton, S.G. 2010. Continuous Auditing in ERP System Environments: The Current State and Future Directions. *Journal of Information Systems*, 24(1): 91–112.

Lamsal, M. 2012. The Structuration Approach of Anthony Giddens. *Himalayan Journal of Sociology & Antropology*, V: 111–122.

Larkin, M., Watts, S. & Clifton, E. 2006. Giving voice and making sense in interpretative phenomenological analysis. *Qualitative Research in Psychology*, 3(2): 102–120.

http://web.b.ebscohost.com.oxfordbrookes.idm.oclc.org/ehost/pdfviewer/pdfview er?sid=9d78747e-c14b-4d30-bf32- 3e7ac14e46a6@sessionmgr115&vid=2&hid=128.

Laws, K., Mcleod, R. & Laws, K. 2006. Table of Contents Go Back Case study and grounded theory : Sharing some alternative qualitative research methodologies with systems professionals . Faculty of Education The University of Sydney NSW 2006 Telephone 02 9351 6396 Facsimile 02 9351 4765 Email . , (Forrester 1961): 1–25.

Leedy, P.. & Ormrod, J.E. 2001. *Practical Research*. 10th ed. New Jersey: Merrill Prentice Hall.

Madani, H.H. 2000. Re-engineering the Role of the Internal Auditor in ERP Solutions. : 103–106.

Magee, K. 2016. IT Auditing and Controls. http://resources.infosecinstitute.com/itac-planning/ 27 June 2016.

Malaescu, I. & Sutton, S.G. 2013. The Reliance of External Auditors on Internal Audit ' s Use of Continuous Audit. , (October): 1–38.

Mauerer, C. & Nissen, V. 2014. Portraying the Social Dimensions of Consulting with Structuration Theory. , (April): 110–130.

May, J., Dhillon, G. & Caldeira, M. 2013. De fi ning value-based objectives for ERP systems planning ☆. *Decision Support Systems*, 55(1): 98–109.

Mcnally, B.J.S. 2013. The 2013 COSO Framework & SOX Compliance The 2013 COSO Framework & SOX Compliance.

Mcnally, J.S. 2013. The 2013 COSO Framework & SOX Compliance: One Approach to an Effective Transition. *The Association of Accountants and Financial Professionals in Business*: 9. http://www.coso.org/guidance.htm.

Meurer, W.J., Frederiksen, S.M., Majersik, J.J., Zhang, L., Sandretto, A. & Scott, P.A. 2007. Qualitative data collection and analysis methods: the INSTINCT trial. *Acad Emerg Med*, 14(11): 1064–1071. http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt =Citation&list_uids=17652268.

Meyer, E.. 2014. Content Analysis. http://microsites.oii.ox.ac.uk/tidsr/kb/content-analysis 11 July 2016.

Miles, E. & Jazaie, R. 2011. Internal Audit Risk Assessment and Audit Assessment

and Audit Planning. : 1–57.

Moorthy, M.K., Seetharaman, A., Mohamed, Z., Gopalan, M. & Lee, H.S. 2011. The impact of information technology on internal auditing. *African Journal of Business Management*, 5(9): 3523–3539.

Morgan and Waring. 2007. Public Sector Performance Auditing in Developing Countries. *Performance Accountability and Combatting Corruptions*: 323–358.

Nair, G.K., Purohit, H. & Choudhary, N. 2014. Influence of Risk Management on Performance : An Empirical Study of International Islamic Bank. , 4(3): 549–563.

Njeri, C. kamau. 2014. EFFECT OF INTERNAL CONTROLS ON THE FINANCIAL PERFORMANCE OF MANUFACTURING FIRMS IN KENYA BY A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN FINANCE , UNIVERSITY OF NAIROBI. : 1–55.

Njeru, A. 2014. FACTORS AFFECTING THE PROCUREMENT OF ERP IN THE PUBLIC SECTOR Charity Nkonge. , 1(2): 205–219.

Nwankpa, J. 2016. Perceived Audit Quality from ERP Implementations Perceived Audit Quality from ERP Implementations. , (March).

Nwankpa, J. & Datta, P. 2012. Perceived audit quality from ERP implementations.(Report). *Information Resources Management Journal VO - 25*, 25(1): 61. http://w3.bgu.ac.il/lib/customproxy.php?url=http://search.ebscohost.com/login.as px?direct=true&db=edsgao&AN=edsgcl.295446687&site=eds-live&authtype=ip,uid&custid=s4309548&groupid=main&profile=eds%5Cnhttp://s earch.proquest.com/docview/906175431?accountid=279.

O' Leary, D.E. 2004. Enterprise Resource Planning (ERP) Systems: An Empirical Analysis of Benefits. , 1(August 2001): 63–72.

O'Connor, H. & Gibson, N. 2003. A step-by-step guide to qualitative data analysis. *A Journal of Aboriginal and Indigenous Community Health*, 1(1): 64–90. http://www.pimatisiwin.com/uploads/1289566991.pdf.

Orlikowski, W.J. 2000. Using Technology and Constituting Structures: A Practice Lens for Studying Technology in Organizations. *Organization Science*, 11(4): 404–428.

Orlikowski, W.J. & Robey, D. 1988. Information Technology and the Structuring of Organizations. : 143–170.

Pairat, R. & Jungthirapanich, C. 2005. A chronological review of ERP research: An analysis of ERP inception, evolution, and direction. *IEEE International Engineering Management Conference*, I: 288–292.

Pierre, Y. & Aboa, J.D. 2014. Continuous Auditing : Technology Involved.

Ponelis, S.R. 2015. Using Interpretive Qualitative Case Studies for Exploratory Research in Doctoral Studies : A Case of Information Systems Research in Small and Medium Enterprises. , 10: 535–550.

Preston, D.S. & Rahman Abdul, Aida Binti Lope, A. 2014. SUSTAINABILITY IN INFORMATION SYSTEMS AUDITING Alifah Aida Binti Lope Abdul Rahman. , 3(September): 458–472.

PriceWaterHouseCoopers. 2003. Building a Strategic Internal Audit Function. : 1–22.

Rezaee, Z., Elam, R., Sharbatoghlie, A., Rezaee, Z. & Elam, R. 2001. Continuous auditing: the audit of the future. *Managerial Auditing Journal*, 16(3): 150–158.

Rezaei, R. 2013. Enterprise Resource Planning (ERP) Software Implementation Impacts on the Auditing Activities. , 2(3): 90–96.

Rosemann, M. 1999. Measuring the Performance of ERP Software – a Balanced Scorecard Approach. : 773–784.

Rouse, M. 2016. COBIT. http://searchsecurity.techtarget.com/definition/COBIT 28 June 2016.

Saharia, A., Koch, B. & Tucker, R. 2008. ERP Systems and Internal Audit. *Issues in Information Systems*, IX(2): 578–586.

Sandberg, J. 2014. ERP Systems - Fully Integrated Solution or a Transactional Platform ? : 15.

SAP. SuccessFactors Performance and Goals.

Shamsuddin, N. & Johari, N. 2014. THE EFFECT OF INTERNAL AUDIT TOWARDS INTERNAL CONTROL SYSTEM EFFECTIVENESS. , (May): 978–983.

Singleton, T.W. 2010. Data Extraction, A Hindrance to Using CAATs. *ISACA Journal*, 6: 1–2.

Soy, S. k. 1997. The Case Study as a Research Method. *Uses and Users of Information -- LIS 391D.1.* https://www.ischool.utexas.edu/~ssoy/usesusers/l391d1b.htm 5 May 2016.

Syspro. 2016. What is ERP. https://www.syspro.com/za/product/what-is-erp/ 28 June 2016.

Theng, Y., Pang, N., Kan, M., Miao, C. & Tang, A.C. 2008. Claims Analysis Meets

Structuration Theory : Analysing Qualitative Students ' Interactions with NTU's edveNTUre Review of Selected, Established Theories for Analysing User Interactions NTU's edveNTUre. *World Conference on Education Multimedia, Hypermedia and telecommunication*, (1997).

Tongco, M.D.C. 2007. Purposive sampling as a tool for informant selection. *Ethnobotany Research and Applications*, 5: 147–158.

Tsai, W. & Chen, S. 2010. A Study of the Impact of Business Process on the ERP System Effectiveness. , 5(9): 26–37.

Twum-Darko, M. 2014. Sustainable Local Economic Development: The Role of Informatics in Determining Municipal Revenue Management. *Journal of Economics and Behavioral Studies*, 6(6): 466–476. http://search.proquest.com/docview/1548423972?accountid=17193%5Cnhttp://sfx.brad.ac.uk/sfx_local?url_ver=Z39.88-2004&rft_val_fmt=info:ofi/fmt:kev:mtx:journal&genre=article&sid=ProQ:ProQ:abiglobal&atitle=Sustainable+Local+Economic+Development:+The+Role+of+In.

Vasile-Daniel, C. 2010. How Financial Auditors use CAATS and Perceive ERP Systems? *Annals of the University of Oradea, Economic Science Series*, 19(1): 490–495. http://w3.bgu.ac.il/lib/customproxy.php?url=http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=67234115&site=eds-live&authtype=ip,uid&custid=s4309548&groupid=main&profile=eds.

Vliet, R. Van Der. 2013. Universiteit Leiden ICT in Business.

Wieder, B., Booth, P., Matolcsy, Z.P. & Ossimitz, M.-L. 2006. Journal of Enterprise Information Management The impact of ERP systems on firm and business process performance. *Journal of Enterprise Information Management Industrial Management &amp Data Systems Benchmarking: An International Journal Journal of Enterprise Information Management*, 19(6): 13–29. http://dx.doi.org/10.1108/17410390610636850%5Cnhttp://.

William, M.. 2006. Research methods knowledge base: Deduction and induction. http://www.socialresearchmethods.net/kb/dedind.php 30 May 2016.

WorkwiseSoftware. 2013. Performance Management In Manufacturing. http://www.workwisellc.com/performance-management-in-manufacturing/ 28 June 2016.

Wright, S. & Wright, A.M. 2002. Information System Assurance for Enterprise

Resource Planning Systems: Unique Risk Considerations. *Journal of Information Systems*, 16(Wah 2000): 99–113.

Appendices

Appendix A: Interview Schedule

COVER LETTER

Introduction and purpose of interview

The role of enterprise resource planning systems in continuous auditing of a selected organization in South Africa

PART A: INTRODUCTION

My name is **Anyanwu Ogechi**. I am a Masters candidate in the MTech: Business Information Systems program at the Faculty of Business and Management sciences of the Cape Peninsula University of Technology. I am in the process of writing my masters' dissertation and am collecting data for that purpose. For my masters' dissertation I am very interested in understanding and interpreting the role of enterprise resource planning systems in continuous auditing of a selected organization in South Africa.

The purpose of this letter is to ask for your assistance by agreeing to be a participant in this study

Background of the research

The implementation of an ERP system does not only deal with the change of hardware and/or software systems, instead it entails transforming the company to a higher level of performance through improved and modernized business process. When ERP is carefully conceived and successfully executed, it can change the way companies conduct business for the better. Successful implementation of ERP drives continuous monitoring and self-diagnosis throughout the implementation process.

Primary objectives of the interview

The main objective therefore is to determine a framework to guide continuous auditing using ERP system. To address the main objective, the following sub-objectives are derived:

- To determine the factors affecting continuous auditing
- investigate how ERP systems' implementation can influence continuous auditing in a retail organization
- Recommend performance management framework of continuous auditing for retail organizations.

Confidentiality and anonymity

All information provided by respondents will be kept strictly confidential and anonymity guaranteed. Information provided will be used strictly for research purposes only. As respondents are participating in this research study on a voluntary basis, respondents may withdraw from the study at any point in time they should so wish.

PART B: INTERVIEW CHECKLIST

B1 Continuous Auditing In Practice

B 1.1	Describe how continuous Auditing is practiced in this organization
1.2	It is important to have a continuous audit function in an organization. Explain why
1.3	Is continuous auditing effective in monitoring performance management? Explain why
1.4	Describe how continuous auditing is effective in monitoring individual performance
1.5	Describe how continuous auditing influences efficiency and effectiveness of operations (e.g. enhancing control efficiency).
1.6	How does ERP play an important role in enhancing continuous auditing

	How does continuous auditing influence efficiency and effectiveness of operations?

B2 Infrastructure, Standards, Policies & Regulations

B 2.1	How are new Policies and procedures communicated to staff, shareholders and stakeholders?
2.2	Does ERP help enforce continuous auditing in your organization? Explain how
2.3	Why is it important for your ERP system to monitor adherence to policies and regulations?

Does ERP help implement continuous auditing in your organization?

Does the use of continuous auditing help to enhance business process

B3 Communication, Practices, Authority

B 3.1	Explain how this organisation ensures that Standards applicable to Internal Auditing are adhered to
3.2	Explain if Organization policies and regulations are stated clearly and why they need to be clearly stated.
3.3	Is your ERP system set to monitor adherence to policies and regulations?

Appendix B: permission letter to use research environment and population (both)

CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

CORPORATE SERVICES AND COMPLIANCE

Gerhard Ras
Executive Director: Corporate Services and Compliance

T: +2721 400 7430
E: Gerhard.Ras@capetown.gov.za

2015-09-04

Anyanwu Ogechi
M-Tech candidate
CPUT

RESEARCH STUDY APPROVAL

I refer to your request to conduct research study on the Topic: The role of enterprise resource planning systems in continuous auditing of a selected organization in South Africa.

The request for research is approved subject to the following conditions:

1. The respondents (City officials) are not obliged to respond or participate, but do so voluntarily and to the extent that they are able or wish to respond or participate.
2. If the research results are published, the name of the City of Cape Town is not to be used without the City's prior permission.
3. It is to be stated in your thesis that it has been prepared in your personal capacity and does not reflect the views of your employer.
4. A copy of the final, completed thesis is to be sent to the Director: Information Systems and Technology(Andre Stelzner); the Acting Director : Internal Audit (Vincent Botto) and the Director: Development Information and Geographic Information System (Keith Smith)

I wish you well in your research.

GERHARD RAS
EXECUTIVE DIRECTOR: CORPORATE SERVICES & COMPLIANCE

CIVIC CENTRE   IZIKO LEENKONZO ZOLUNTU   BURGERSENTRUM
12 HERTZOG BOULEVARD CAPE TOWN 8001 PRIVATE BAG X9181 CAPE TOWN 8000
www.capetown.gov.za

Making progress possible. Together.

Appendix C: Ethics Approval

Cape Peninsula
University of Technology

P.O. Box 1906 • Bellville 7535 South Africa •Tel: +27 21 6801680 • Email: saliefa@cput.ac.za
Symphony Road Bellville 7535

Office of the Chairperson Research Ethics Committee	Faculty:	**BUSINESS**

At a meeting of the Research Ethics Committee on 16 September 2015, Ethics Approval

was granted to ANYANWU, OGECHI ULOMA (210027371) for research activities

Related to the MTech/DTech: MTech: BUSINESS INFORMATION SYSTEMS

at the Cape Peninsula University of Technology

Title of dissertation/thesis:	The role of enterprise resource planning in continuous auditing of a selected organisation in South Africa Supervisor: Dr M Twum-Darko & Mr A Jerry

Comments:

Decision: APPROVED

(signature) Signed: Chairperson: Research Ethics Committee	16 September 2015 Date
(signature) Signed: Chairperson: Faculty Research Committee	16 September 2015 Date

Clearance Certificate No | 2015FBREC305

110