



**THE EFFECT OF INTERNAL CONTROL SYSTEMS ON THE  
MONITORING OF FINANCIAL RESOURCES AT A HIGHER  
EDUCATION INSTITUTION**

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degree of

**MASTER OF ACCOUNTING**

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at the Durban University of Technology

**FARISHA PILLAY**

Date Submitted: 6 December 2024

Supervisor: Dr C.J. Nyide  
(DBA)

## DECLARATION

I, Farisha Pillay, hereby declare that the content within this dissertation is my own work. All sources that I have used or quoted have been acknowledged in-text by means of completed references. This study has not been previously submitted in any form to the Durban University of Technology or to any other institution for assessment or for any other purpose.

6 December 2024

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**Signature Date**

**APPROVED FOR FINAL SUBMISSION**

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Dr Celani J. Nyide (DBA)

06/12/2024

\_\_\_\_\_  
Date

## DEDICATION

*I dedicate this study to my family,*

*My sons, Reuel, Mikhai & Remiel,*

*my husband Magen,*

*my mum,*

*my sisters, Bhavana and Keshna*

*&*

*my brother in law, Martin*

*You all have been my source of inspiration and unwavering support through my studies. Your consistent encouragement to always persevere has been my driving force in reaching this significant achievement.*

*“For I know the plans I have for you,” declares the Lord, “plans to prosper you and not to harm you, plans to give you hope and a future.”*

**Jeremiah 29:11**

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## ABSTRACT

The main objective of the study was to assess the effectiveness of internal control systems in monitoring financial resources at the Durban University of Technology. It explored the current processes and systems of internal control used at DUT. The study identified the challenges of implementing internal control systems and examined the factors affecting the implementation. The study adopted a quantitative research design where a questionnaire was used to collect data from respondents to attain the research objectives. The study used a positivism research philosophy were a deductive research approach and descriptive survey design was utilised. The targeted population of the study consisted of eighty-five staff who are employed in the Finance department at DUT. The study used non-sampling method were census sampling was use to select a sample size of 85 respondents. Questionnaire was the main research instrument and SPSS was utilised to analyse data. From the findings, the study concludes that while the organization has several effective control measures in place, there are areas of improvement needed to strengthen risk assessment procedures, staff awareness of policies, and the adequacy of internal controls to cover all operations. The challenges in implementing controls are acknowledged as inherent due to human factors and the potential for collusion. The study highlights the organization's lack of proper risk assessment procedures and recommends developing policies, training employees, addressing control limitations, employing technology, offering governance training, ensuring fair compensation, reducing pressure, rotating personnel, and improving key factors affecting control systems through communication, monitoring, values, support, oversight, structure, audit, and policies.

**Key words:** Internal control systems, financial resources, effectiveness, monitoring, implementing controls

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## **ABBREVIATIONS**

COSO	Committee of Sponsoring Organisations of the Treadway Commission
COCO	Criteria of Control
DUT	Durban University of Technology
OECD	The Organisation for Economic Cooperation and Development

# **CHAPTER ONE**

## **INTRODUCTION AND OVERVIEW OF THE STUDY**

### **1.1 Introduction**

The effective and efficient use of both financial and non-financial resources is essential to any organization's survival. It is therefore imperative that the management of an organisation implements a wide range of internal controls that optimise the use of the resources entrusted to each employee. Internal controls refer to the organisational frameworks, practices, policies, and procedures that are put in place to give a reasonable assurance that a company will meet its goals and that undesirable risk events will be avoided, identified, and addressed in response to either compliance requirements or management-initiated concerns (Alemu, 2020:10). Further, effective internal controls have a positive impact on budgeting, accountability, loss prevention, the preparation of accounting records, and the reliability of financial information. State funding for universities is provided in the form of block grants and earmarked grants, which are utilized for operational expenses such as upkeep of facilities linked to teaching, learning and research activities. Block grants are regarded as council-controlled funds, which the council and university administration may utilize at their discretion. It is therefore paramount that universities as well as Ministry be accountable to the public for the use of these funds. According to the Public Higher Education Institutions Regulations for Reporting (Government Gazette No. 37726, Notice 9 June 2014), institutions must report on the effective and efficient use of funds, the outcomes they obtain from them and how they plan to meet the priorities and goals of national policy (Ministerial statement on funding, 2021). By implementing robust control measures, organisations can improve their financial management practices and ensure the efficient and responsible use of resources (Kisanyanya, 2018:36). According to Korir (2022:7-8), the absence of internal controls has a negative impact on the audit results of public institutions and provides opportunities for fraud, corruption, and asset abuse. However, properly managed internal controls can also help improve service delivery and discourage undesirable outcomes.

This chapter addresses the background of the study, the problem statement, the purpose of the study, the research objectives, the research questions, and the scope

of the study, while also acknowledging the significance of the general body of knowledge.

## **1.2 Background to the study**

The concept of internal controls has a long historical lineage, dating back to ancient Hellenistic Egypt, where a dual administration system was employed—one group of officials collected taxes while another supervised their activities (Sserunjogi, 2018:1). Today, internal control systems are vital across institutions globally, although their frameworks and implementations differ significantly among countries. Notably, the 1990s saw the emergence of critical internal control frameworks, such as the Committee of Sponsoring Organisations of the Treadway Commission (COSO) in the United States of America, the Turnbull Report United Kingdom, and the Criteria of Control (COCO) framework in Canada (Wei-guo, 2018:139). These frameworks underscore that effective internal controls are essential human-driven processes that assist organisations in realizing their objectives while providing reasonable assurance in risk management (Alemu, 2020:14; Wei-guo, 2018:139).

The significance of internal controls has grown substantially, particularly in the aftermath of high-profile corporate scandals such as Parmalat, Enron, and Tyco, that illuminated governance failures and control deficiencies (Adetula et al., 2020:4505). These incidents prompted intensified demands on governments, regulators, and standard-setting organisations to implement and uphold more stringent internal control systems (Alemu, 2020:10). Nonetheless, the persistence of fraud and financial mismanagement reveals the inadequacies of existing internal control mechanisms continue to persist, exposing the limitations of current internal control mechanisms (Adom-Frimpong, 2019:4). Thus, robust internal controls are indispensable in both public and private sectors to ensure transparency, efficiency, and value for money (Eton et al., 2022:362-364; Okoglan et al., 2022:53-54).

In the higher education sector, particularly among Africa's leading universities, good governance is imperative. The Public Finance Management Act (PFMA), Act No. 1 of 1999, mandates public institutions to manage financial resources efficiently, transparently, and effectively. Furthermore, the Higher Education Act (Act No. 101 of 1997) requires universities to disclose governance, risk management, and financial

activities to foster accountability and transparency (Sityata, Botha, and Dubihlela, 2021:195). However, many South African universities grapple with governance challenges, often struggling to manage finances in a transparent manner (Imenda, 2018:15-16).

Recent governance failures in the South African higher education sector have highlighted the urgent need for robust internal control systems. For example, the Central University of Technology (CUT) faced scrutiny following the suspension of its Vice-Chancellor, while the Mangosuthu University of Technology (MUT) was placed under administration (Edwards, 2023; Khumalo, 2022). Additionally, the University of Cape Town (UCT) experienced governance-related issues, the University of Fort Hare dealt with safety concerns, and the University of KwaZulu-Natal (UKZN) faced corruption allegations related to student accommodation (Sunday World, 15 November 2022). The University of South Africa (UNISA) also reported serious governance and management issues.

These governance issues extend to the Durban University of Technology (DUT), where the 2019 Annual Report revealed significant flaws in internal control frameworks, raising alarms about fraud, irregularities, and financial mismanagement. Reports highlighted issues such as victimisation, irregular appointments, missing funds, and questionable security measures (Edwards, 2023). Such challenges jeopardize the institution's stability and transparency, both of which are vital for a positive learning environment.

In light of these governance and financial management difficulties, it is evident that effective internal control measures are crucial for maintaining operational efficiency and financial accountability at DUT. However, even with existing internal control systems, the institution remains vulnerable to financial losses and fraudulent activities, exacerbated by insufficient human resources and gaps in policy enforcement (DUT, 2019). The lack of enforced employee leave and rotations in critical finance roles further increases the risk of misconduct and malpractice (Tjiueza, 2018:8). These persistent issues cast doubt on the effectiveness of DUT's internal control systems, underscoring the necessity for a comprehensive assessment to determine whether these systems are achieving their intended objectives and fulfilling their stated goals.

### **1.3 Statement of the problem**

Despite the implementation of various internal control systems at the Durban University of Technology (DUT) aimed at enhancing financial performance, efficiency and accountability, significant operational challenges persist. The core problem lies in the apparent disconnect between the established internal control mechanisms and their effectiveness in mitigating risks related to fraud, asset misappropriation and inefficient management practices.

While DUT has taken commendable steps, such as conducting annual strategic risk workshops since 2018, the outcomes have not translated into the anticipated improvements in operational integrity. Reports of documented fraud and irregularities highlight a systemic failure within the internal control framework. For instance, cases of asset misappropriation, and ineffective management practices (DUT, 2019; Motha, 2023) not only disrupt operations but also contribute to a culture of inefficiency and underutilisation of resources. The rising customer complaints and increasing operational costs further underscore the inadequacy of the existing internal controls to address these pressing issues.

Moreover, the disciplinary actions against employees for non-compliance with supply chain and human resource policies indicate deeper systemic flaws, including potential staff collusion and fear, which undermine the effectiveness of governance structures (DUT, 2019). The situation is exacerbated by irregular recruitment processes and incidents of looting, which point to a breakdown in internal accountability mechanisms. Trust in the institution's governance is further eroded by concerns over prolonged suspensions and questionable security measures (DUT, 2019), raising fundamental questions about the integrity of the institution's financial management.

The real academic problem, therefore, revolves around the efficacy of DUT's internal control systems. Despite their existence, these controls may not be functioning as intended; they may be failing to provide the necessary oversight and assurance required to promote accountability and prevent fraudulent activities. This situation necessitates a critical assessment of the internal control frameworks in place to determine whether they are adequately aligned with the university's strategic objectives and capable of effectively managing financial resources.

In light of these challenges, the study posits that a rigorous evaluation of the internal control systems is essential. It aims to identify the underlying gaps and deficiencies that hinder operational efficiency and financial management, thereby addressing the broader question of whether current practices support or undermine the university's strategic goals. This exploration is vital for understanding how to strengthen DUT's governance and enhance its operational performance, ensuring that internal control mechanisms serve their intended purpose.

#### **1.4 Research aim**

The aim of the study is to assess the effectiveness of internal control systems in monitoring financial resources at the Durban University of Technology and identify areas for improvement.

#### **1.5 Research objectives**

In order to achieve the aim of this study, the following objectives have been developed:

- To determine the existing internal control mechanisms in place for monitoring financial resources at DUT.
- To examine the influence of internal control mechanisms on monitoring financial resources at the DUT.
- To examine the factors that influence the performance of internal control systems at DUT.

#### **1.6 Research questions**

Following from the above objectives, the study sought to address the following questions:

- What are the existing internal control processes and systems used at DUT?
- What is the influence of internal control mechanisms on monitoring financial resources at DUT?
- What are the factors affecting the performance of internal control systems on monitoring financial resources at Durban University of Technology?

## 1.7 Significance of the study

The primary objective of this study is to comprehensively evaluate the efficacy of internal control systems in overseeing the monitoring of financial resources within a selected University of Technology. This research fills a critical gap in the existing literature concerning effective governance practices, internal control systems, and financial resource management within higher education institutions. Notably, previous studies by Wei-guo (2018:142); Solikin et al. (2018:371); Adetula et al. (2020:4506); Sityata, Botha, and Dubihlela (2021:195) have highlighted persistent challenges in understanding the effectiveness of internal control systems in financial monitoring across the higher education sector.

By shedding light on these issues, this study aims to provide valuable insights to university administrators and governing bodies, empowering them to enhance transparency, accountability, and ethical conduct within their respective institutions. Moreover, the findings of this study seek to serve as a roadmap for policymakers, guiding the implementation of robust internal control mechanisms and addressing vulnerabilities in supply chain and contract management practices. Ultimately, this contributes to fostering a culture of good governance, which directly impacts the quality of education and the overall academic environment for students and staff (Francis & Imiete, 2018:78).

Furthermore, by addressing challenges such as corruption, mismanagement, and organisational culture, this study seeks to create a safer, more inclusive, and conducive learning and working environment. It aims to safeguard the rights and well-being of students and staff, ensuring fair treatment, opportunities for growth, and a relentless focus on educational excellence.

Importantly, the insights generated by this study are not only relevant to university stakeholders but also hold significant implications for policymakers and government officials responsible for shaping higher education policies and regulations. By understanding the complexities and shortcomings in governance and management practices, policymakers can develop targeted interventions, provide strategic guidance, and establish frameworks that promote transparency, accountability, and financial sustainability within universities. This, in turn, facilitates the allocation of

resources and support to address specific challenges identified in the study, leading to the continuous improvement of higher education institutions.

## **1.8 Delimitations of the study**

This study focused on a selected university in the province of KwaZulu-Natal, South Africa—the Durban University of Technology. The study was limited to the operating period of 2019–2022. It used financial and auditor reports and the primary data collected from the respondents, who are staff of the Finance Department.

## **1.9 Research methodology**

This study employed an exploratory research design and adopted a case study research approach. A quantitative research method was used, as this is the most effective approach when there are a large number of respondents. The perceptions and knowledge of respondents on the effectiveness of internal cost systems in monitoring financial resources were quantified using the Likert scale in order to statistically study the patterns of the responses and draw reliability tests with some certainty. Eighty-five staff within the Finance Department were identified as the target population for this study. The study assessed the effectiveness of internal control systems used in monitoring financial resources at DUT; hence, Finance Department personnel were chosen to form the target population of the study because of their vast knowledge and experience of internal controls used in monitoring financial resources compared to other employees.

Respondent ratings were obtained using a standard questionnaire consisting of closed-ended questions, weighted using a Likert scale (ranging from 1 to 5). Likert-scale questionnaires allow for the fast collection of data from a large number of respondents. To address the study's questions and reach pertinent conclusions, the data that was gathered from the respondents was coded and analysed using the Statistical Package for Social Science (SPSS) and the relevant charts and tables. To make sure the final questionnaire is error-free and that any necessary changes are made before data collection for the study can begin, a pilot study was conducted.

## **1.10 Structure of chapters**

**Chapter 1:** This chapter contextualises the research study by highlighting the background, research problem, aim and research objectives. It also provides the justification of the study, delimitations of the study and highlights the research methodology that was adopted.

**Chapter 2:** This chapter reviews the pertinent literature and discusses the theoretical and conceptual framework that underpins the study.

**Chapter 3:** In this chapter, the research methodology that was employed for the study is discussed. It specifically discusses the research paradigm, research design, research methods, sampling methods and data collection techniques that were used in the study. The chapter also provides the steps taken to ensure that data collected are reliable and valid. It also outlines the ethical guidelines that were considered to ensure that all respondents' rights are not violated.

**Chapter 4:** This chapter outlines the data presentation of analysed data and provides discussions of the findings, guided by the research questions.

**Chapter 5:** The major summaries of the findings, conclusions reached on research questions, contributions of the study to literature, suggestion for future studies and recommendation to different stakeholders are included in this chapter.

## **1.11 Chapter summary**

The background information on the efficiency of internal control systems used to monitor financial resources at a higher education institution was given in this chapter. The research objectives, problem statement, and research questions were introduced. A summary of the study's importance and boundaries was also provided. The theoretical framework and the literature review will be the main topics of the following chapter.

# **CHAPTER TWO**

## **LITERATURE REVIEW**

### **2.1 Introduction**

The literature review presented in this chapter serves to provide a theoretical, contextual understanding of the various issues that underpin the research questions framed for this study. The reviewed literature expands on, in some detail, the concept of internal controls and their impact on monitoring the financial resources of organisations as well as other variables such as operational performance and financial performance.

In the first instance, the chapter outlines the theoretical framework and the conceptual framework of the study. In this regard, a review of empirical evidence gleaned from relevant literature based on this study's research objectives is presented. Thereafter, the literature review provides well-documented guidelines for the effective implementation of internal control systems in the higher education sector. The potential benefits of internal control systems, and the factors affecting the effective implementation of internal control systems are also included.

### **2.2 Theoretical framework**

As a point of departure, the theoretical framework underpinning this investigation is presented in this section. According to Adom, Hussein, and Agyen (2018:338), a theoretical framework is based on accepted theories in an area of study related to the subject of study. It provides a framework or foundation around which a study is built and lends relevance and generalizability to the findings. Using agency theory and contingency theory, this study offers a methodical understanding of internal controls and their relationship to monitoring an organization's financial resources. This corresponds with several studies which are underpinned by the agency and contingency theories such as those by Francis and Imiete (2018:79), Indriasih and Sulistyowait (2021:186), Kalevor et al. (2024), Ibrahim et al. (2017:684), and Eton et al. (2022:360); Otoo et al. (2023:120).

### **2.2.1 Agency theory**

Adams (1994) suggests that agency theory can provide insight into the presence, function, and obligations of the internal audit function. Agency theory contends that internal auditing facilitates the maintenance of cost-effective contracts between owners and managers, much like other intervention mechanisms like financial reporting and external audit (Adams, 1994:10; Kalevor et al. (2024). Raimo et al. (2020: 524), argue that agency theory is a highly prevalent theoretical framework employed to elucidate corporate governance and internal control systems.

Kalevor et al. (2024) and Tuan and Hung (2015:2) define an agency relationship as "a contract under which one or more parties hire another party (the agent) to perform some service on their behalf and authorise agents to make decisions" (delegate making decision authorities to the agent). According to agency theory, "the separation of ownership and control, which leads to conflicts of interests" is the root cause of agency issues that corporations currently face Kalevor et al. (2024); Tuan, (2016:2). According to Eke (2018:34), dividing control and ownership will result in interest conflicts, which frequently arise in the majority of individual activities in a decentralised system involving the owner and the agent. To enable principals to monitor and regulate agent behaviour and bolster confidence in agents, several strategies can be employed to attempt to match the interests of principals and agents. By designing compensation packages that tie the financial interests of agents to the objectives of principals, conflicts can be mitigated Kalevor et al. (2024). Performance based incentives such as bonuses or profit-sharing arrangements, provide agents with motivation to act in the best interest of the principal and contribute to the overall success of the organisation. Another important strategy is the implementation of monitoring mechanisms. Principals need to have systems in place to oversee and evaluate the actions and decisions of agents. Regular reporting, performance reviews and audits provide transparency and accountability (Alemu, 2020:10). By monitoring agent behaviour, principals can identify and deviations or potential conflicts of interest, allowing for timely intervention and corrective measures. This helps to maintain trust and confidence in the agent-principal relationship.

The strategic decision to apply agency theory to Durban University of Technology's (DUT) investigation of how well internal control systems monitor financial resources is in line with the goals and objectives of the study. The following describes how the study's goals fit with agency theory: The initial goal is to evaluate the internal control systems that DUT currently has in place for keeping an eye on its financial resources. According to agency theory, there should be strong internal controls in place to lessen the possibility of agents acting opportunistically (Kisanyanya, 2018:31). Evaluating these mechanisms in the context of DUT shows how well the organisation synchronizes the interests of its stakeholders (principals) with those in charge of overseeing financial resources (agents). By applying agency theory, the study can critically evaluate whether current controls adequately prevent mismanagement or misuse of funds and ensure that financial reporting is transparent and reliable. Studies such as those by Jensen and Meckling (2019:77) highlight the importance of agency costs in organisational settings, suggesting that well-designed internal controls can reduce these costs. Similarly, several studies (Nyakamba, Machogu and Onsase, 2017:2543; Mununyo and Jagong, 2018:274; Masanja and Masimba, 2020:55) illustrate how strong internal controls can enhance accountability and reduce fraud in educational institutions.

The second objective is to identify the implementation challenges of internal control systems in monitoring financial resources at DUT. The Agency theory provides insights into the potential conflicts that arise during the implementation of internal controls (Jensen and Meckling, 2019:135). These conflicts may stem from differing interests and motivations between various stakeholders and agents (Alemu, 2020:10; Tuan and Hung, 2015:2; Ibrahim et al. (2017:686). Using this theory, the research can look into the underlying causes of problems that arise during the implementation of internal controls such as inadequate communication, resistance to change or a lack of training. Tuan and Hung's (2015:2) research explores how agency-related problems can cause resistance to the implementation of internal controls. According to their findings, knowing the principal-agent relationship can aid in identifying particular implementation problems and enable focused interventions. An effective technique for recognising and comprehending the difficulties associated with implementing internal control systems was agency theory. According to Ibrahim et al. (2017:686),

this theory acknowledged that internal controls systems entailed keeping an eye on and managing the activities of university administrators which may result in potential conflicts of interest and information asymmetry.

The third objective entails examining factors affecting successful implementation of internal control systems used to monitor financial resources at DUT. According to agency theory, any control systems ability to successfully align principal's and agent's incentives is essential (Jensen and Meckling, 2019:125; Tuan and Hung, 2015:3; Ibrahim et al. (2017:686). This goal makes it possible to investigate the ways in which organisational cultures, leadership dedication and worker motivation affect how effective internal controls are. Through the application of agency theory to these factors, the research can identify ways to improve the alignment of interests and consequently, the success of implementation.

The work of Ibrahim et al. (2017:684), emphasises that aligning interests through appropriate incentives and governance structures can considerably improve internal controls efficacy. Furthermore, studies by Tuan and Hung (2015:3) and Eton et al. (2022:360), highlight the importance of organisational culture in mitigating agency problems, reinforcing the need to consider these factors in the implementation of internal controls. By applying agency theory, the study delved into the factors that influenced the design, implementation and maintenance of internal control systems in the higher education sector. Additionally, agency theory allowed for the analysis of organisational, cultural and contextual factors that impacted the efficiency of internal control systems at DUT, such as organisational structures, leadership practices and governance mechanisms (Eton et al. 2022:361).

In conclusion, the adoption of agency theory in this study provides a comprehensive framework to analyse the complex dynamics of internal control mechanisms at DUT. By aligning the research aims and objectives with the principles of agency theory, the study effectively addresses critical issues related to accountability, implementation challenges and the factors influencing successful control systems. This theoretical grounding not only enhances the rigor of the research but also situates it within a broader scholarly context, supported by relevant literature that underscores the

significance of agency theory in understanding internal controls in organisational settings (Korir, 2022:7).

### **2.2.2 Contingency theory approach**

In order to explain how contingent factors like culture, technology and the external environment affect how organisations are designed and function, contingency theory focuses on the behavioural side of an organisation (Ibrahim et al., 2017:689) and (Eton et al., 2022:361). The contingency theory assumes that no organisational structure is universally applicable to all organisations. Ibrahim et al. (2017:689), contend that rather than having a single, universal solution, organisational practices efficacy depends on a variety of contextual factors. The study, which took a contingency perspective, looked at how organisational structure, leadership style, environmental uncertainty and technological advancements influenced the efficacy of DUT's internal control systems (Eton et al., 2022:359). This made it possible for the study to go beyond the fixed assumptions of agency theory and acknowledge that the particular circumstances of the organisation have an impact on how principals and agents align their interests. The criticism that agency theory oversimplifies the complexities inherent in principal agent relationships is addressed by incorporating contingency theory, which offered a more dynamic and comprehensive understanding of the factors that impact the implementation and performance of internal control systems (Ibrahim et al., 2017:689).

The contingency theory's primary premise is that organisations can only function effectively and efficiently when they adapt their organisational features in response to changes in their operating environment (Eton et al., 2022:361). According to the theory, every organisation has unique circumstances related to its size, strategies, technology capabilities, assets, and products (Korir, 2022:8). Tuan (2016:3) asserts that an organization's contingency characteristics dictate its internal control structure, with each level of the structure fitting a particular set of contingency characteristics. Different organisational characteristics lead to differences in an institution's internal control. The operational environment, goals, culture, size, and governance philosophy of the company (Korir, 2022:8; Lakis and Girinjas, 2012:149). This study seeks to provide guidelines for the efficient implementation of internal control systems at DUT

by taking contingency characteristics into account, based on a knowledge of contingency theory.

The present study's application of contingency theory is congruent with the goals and purpose of the research. The first goal is to evaluate the internal control systems that DUT currently has in place for keeping an eye on its financial resources. According to contingency theory, the efficacy of internal control mechanisms varies depending on certain contextual factors like the regulatory environment, organisational size and structure (Eton et al., 2022:367). No single internal control mechanism is universally effective. Through an evaluation of DUT's current controls, the research can determine how well these mechanisms fit the particular demands and features of the organisation. Studies like those by Eton et al. (2022:367), illustrate that organisations must tailor their internal controls to fit their specific operational contexts. Research by Francis and Imiete (2018:85) emphasizes the importance of aligning management control systems with the organisation's environment, reinforcing the need for a contingency perspective in evaluating internal controls.

The identification of internal control system implementation challenges in the context of DUT financial resource monitoring is the second objective. Contingency theory states that organisational context—which includes culture, stakeholder expectations, and external regulatory demands—often influences the difficulties encountered in putting internal controls in place (Eton et al., 2022:367); (Francis and Imiete, 2018:85); (Ibrahim et al., 2017:687). By utilising this theory, the research can reveal how these contextual elements obstruct successful implementation, providing a clearer understanding of why particular controls might not work in particular situations.

Research by Eton et al. (2022:368), highlights how contextual factors can significantly impact the implementation of management controls, suggesting that recognizing these contingencies is crucial for effective control systems. Similarly, a study by Francis and Imiete (2018:85) underscores the importance of fitting control systems to the specific needs and challenges of the organisation adding weight to the argument that implementation challenges are not merely technical but deeply contextual.

The third objective is to examine the factors affecting the successful implementation of internal control systems used to monitor financial resources at DUT. According to

contingency theory, a number of internal and external factors, including employee engagement, leadership style and the regulatory environment have an impact on how well control systems perform (Eton et al., 2022:368; Francis and Imiete, 2018:88; Ibrahim et al., 2017:686). By looking at those variables, the study can determine how well DUT's internal control systems match the unique requirements and difficulties of the organisation and evaluate the chances of their implementation being successful. Organisations perform better when their management practices are in line with their environmental contexts as evidenced by the work of Otoo, Kaur and Rather (2023:121). Additionally, studies by Vulley (2022:67) and Tenbele (2019:147) examined the influence of an organisation's operational environment, goals, culture, size and governance philosophy on the design and effectiveness of its internal control structure. Their findings support the approach taken in the current study where the aim is to provide guidelines for the efficient implementation of internal control systems at DUT by considering the institution's unique contingency characteristics. Similarly, Tuan (2016:3) found that different organisation characteristics such as size, technology and environmental uncertainty led to variations in the internal control system structure. This aligns with the objective of the present study to examine how the contingency characteristics of DUT influence the internal control systems used to monitor financial resources.

In summary, the study's application of contingency theory offers a solid framework for analysing DUT's internal control systems. The research successfully addresses the complex nature of internal controls, the difficulties associated with their implementation, and variables affecting their success by co-ordinating its goals and objectives with the concepts of contingency theory. This theoretical framework not only improves the research's depth but also places it within the context of established scholarly discourse. It is backed by pertinent literature that highlights the value of contingency theory in comprehending and enhancing internal control systems across a range of organisational contexts.

### **2.3 The Concept and objectives of Internal Control**

Internal control goals at the organisational level include following legal and regulatory requirements, providing prompt feedback on the achievement of strategic or operational objectives, and ensuring the accuracy of financial reporting (Bitali, 2019:4).

Internal controls at the transaction level describes the steps done to accomplish a particular goal or task. Three goals were identified by COSO in respect of internal controls: compliance with relevant laws and regulations, effectiveness and efficiency of operations, and dependability of financial reporting (Agyapong, 2017:48; Korir, 2022:8).

### **2.3.1 Effectiveness and efficiency of operations**

Keeping organisational operations effective and efficient is one of the goals of putting internal controls in place. In this regard, internal controls should be implemented to guarantee uninterrupted operations and seamless process flow (Bitali, 2019:2). This lessens the possibility of inefficiencies and risks to the organization's capacity to create value. According to Francis and Imiete (2018:81), internal controls can improve operational efficiency through eliminating unnecessary or irrelevant steps from a procedure or process. This can involve the automating of manual controls or combining tasks in an economical way (Sserunjogi, 2018:3). Increased operational effectiveness makes it possible for management to get timely information about whether current operations are accomplishing the company's goals (Agyapong, 2017:48). An efficient organisation establishes job roles for employees, efficiently handles information, and has thorough procedures in place to find problems and fix them (Nganga, 2015:12). Effective internal controls are essential to an organization's financial management, and such control mechanisms boosts an organization's overall performance and safeguards its assets (Tjiueza, 2018:7).

### **2.3.2 Reliability of financial reporting**

According to Muhunyo (2018:1), ensuring the accuracy of financial reporting is the primary goal of internal controls. According to Sserunjogi (2018:1), internal controls make sure that bookkeeping and transactions are appropriate, legitimate, correctly recorded, timely, and complete. According to Anaenyi (2022:18), effectively implemented internal control systems strengthen the accountability function of an entity's management by enhancing the reporting process and producing reliable reports. According to Okoi (2021:5), trustworthy information boosts productivity by guaranteeing the security of financial data, which is crucial for those in authority who utilise it to make decisions. In addition to ensuring the accuracy of financial reporting,

internal controls also play a crucial role in safeguarding assets and preventing fraud or misappropriation of resources (Williams, 2020:10). By implementing effective internal control systems, organisations can reduce the risk of financial losses and protect their resources from unauthorized use or misuse (Cascini et al., 2020:7)

### **2.3.3 Compliance with applicable laws and regulations**

The purpose of laws and regulations is to control the institution, and to maintain standards of behaviour that the institution includes in its compliance goals and requires enforcement (Bitali, 2019:3). Such laws and regulation are typically legislated by governments, in the case of higher education institutions. According to Francis and Imiete (2018:81), internal controls aid in ensuring that the university complies with the numerous state and local laws and regulations that have an impact on how the institutions operate. By implementing effective internal control systems, universities can demonstrate their commitment to ethical conduct, legal compliance and reasonable governance (Sofyani, Abu Hasan and Saleh, 2022:141). Furthermore, internal controls assist in mitigating legal and regulatory risks by identifying areas of non-compliance and implementing corrective measures (Rija and Ernesto Rubino, 2018:21).

## **2.4 Elements of an internal control system**

COSO (2019:5) specifies the following five elements that comprise an internal control system:

### **2.4.1 Internal control environment**

Although the literature review in respect of the internal control environment refers broadly to “organisations”, the relevance to higher education institution in South Africa is unquestionable.

Vulley (2022:65) asserts that an organization's internal control environment, which includes functions beyond financial management, “sets the standard”. The establishment of common ethical standards, with clearly defined responsibilities, authority relations, guidance, and control routines, and an atmosphere of mutual trust that supports information flow, collaboration, and organisational competence to initiate

and carry out necessary control initiatives are all significant concerns addressed by the control environment, according to Otoo, Kaur, and Rather (2023:120). Ilyas et al. (2021:6040) elaborate further and submit that an organization's control environment is greatly influenced by a number of major factors, including the organization's organisational structure, the way in which authority and responsibility are delegated, the attention and guidance given by oversight groups, the integrity and ethical values of management and employees, personnel competencies, management philosophy, and operations style. Additionally, the control environment of an organisation sets the tone and molds the control awareness of its members (Ilyas et al., 2021:6040). It thus serves as the cornerstone of internal control, offering structure and discipline.

#### **2.4.2 Internal control risk assessment**

Mamand and Alogaz (2021:266) assert that management must pay attention to risks at all organisational levels and take appropriate action to manage them since risk identification and analysis is a continuous process that is essential to the efficacy of internal control. They further stated that in addition to considering past budgetary violations and organisational goals, management should also look at other factors that either increase or contribute to the risks that the organisation may face (Mamand and Alogaz, 2021:266). According to Akinleye and Kolawole (2020:407), the majority of small businesses fail because their owners lack knowledge about strategy development, planning, and recognising and controlling business risks.

#### **2.4.3 Internal control activities**

Internal activities are described by Vulley (2022:67) as policies, procedures, techniques, and mechanisms that guarantee management's instructions are followed in order to meet the organization's goals, including financial, programmatic, and budgetary goals, as well as to prevent and detect fraud. According to Tenbele (2019:147), control activities are the policies and procedures that ensure that management's directives are carried out. They assist in making sure that the appropriate steps are done to address risks to the accomplishment of the organization's goals. They help ensure that the right actions are taken to mitigate risks to the achievement of the organisation's objectives. Within an organisation, control activities are carried out by all levels and departments. These activities encompass a

range of responsibilities, including operating performance assessments, asset security, authorisations, approvals, verifications, reconciliations and segregation of duties (Agyapong, 2017:52; Tjiueza, 2018:17–18).

#### **2.4.4 Information and communication**

According to Wei-guo (2018:142), information is required across the entire organisation in order to meet the goals in the areas of operations, compliance, financial reporting, and operations. Management's capacity to oversee the organisation and achieve its goals is impacted on by the quality of information that its systems collect, maintain, and report. Such quality is determined by a number of factors, including the information's appropriateness, timeliness, accuracy, and accessibility (Korir, 2022:7; Vu, 2016:145). In order to guarantee that informed decisions are made throughout the organisation these quality factors which are impacted on by internal control systems must be inherent in the data (Mamand and Alogoz, 2021:226). According to Wei-guo (2018:142), information is required across the board for the organisation to meet its goals in the areas of operations, financial reporting, and compliance. Management's capacity to effectively oversee the organisation and achieve its goals is impacted on by the quality of information that the systems collect, maintain, and report. This quality is determined by a number of factors, including the information's appropriateness, timeliness, accuracy, and accessibility (Korir, 2022:7; Vu, 2016:145).

#### **2.4.5 Internal control monitoring and evaluation**

According to Akinleye and Kolawole (2021:407), “monitoring” is the process by which an organisation oversees the performance of the control system; as such, it ought to be continuous and integrated into regular business operations and activities. As a component of monitoring systems, internal and external audits can offer an unbiased evaluation of the calibre and efficacy of a control system's operation and design (Mamand and Alogoz, 2021:266). Everyone within the organisation should be aware of their roles and responsibilities in reporting any breaches of control systems, and they should all share responsibility for monitoring and self-evaluation (Vulley, 2022:67).

## **2.5 Guidelines for effective implementation of internal controls**

"A sound control environment is created by management through communication, attitude, and example" (Korir, 2022:7; Nyakamba et al., 2017:2542) and is part of the framework of a good internal control system. The aspect of "integrity" is emphasised, along with a commitment to looking into inconsistencies, careful system design, and responsibility distribution. Finding the areas with the highest threat or risk of errors or losses is part of this process. The highest risks should be subject to the highest levels of control and effort in order to be most effective (Korir, 2022:7; Nyakamba et al., 2017:2543).

### **2.5.1 System review and clear policies**

The literature on this research area appears to be quite unanimous in the view that management has to review the internal control system on a regular basis. The purpose of such a regular review is to ensure that internal control activities have not been lost or rendered obsolete by turnover or other circumstances by conducting a periodic assessment (Mjaku and Pristina, 2019:135–137). In order for internal control systems to continue being adequate given the risks at hand, they should also be improved. An effective internal control system must have readily-available information as well as a clear and obvious plan for communicating roles and expectations (Alawaqleh, 2020:205). Such a system should also be easy for employees to adhere to the established policies and procedures that have been put in place to support the achievement of the organization's objectives.

### **2.5.2 Segregation of duties and financial performance**

Segregation of duties, according to Francis and Imiete (2018:78), is essential to efficient internal control because it lowers the possibility of errors and inappropriate behaviour. Authoritative, accounting, and custodial functions are kept apart by an efficient internal control system. Furthermore, it is a cornerstone of internal control, ensuring that no department or individual manages every facet of a transaction from start to finish (Sserunjogi, 2018:14). Similarly, segregating the roles of recording, authorising, holding custody, or having many employees involved within the processes lowers the possibilities of fraud. Combining some tasks would allow one person to

record and handle a complex transaction; this control lowers the possibility that the institution will make mistakes or intentionally manipulate things through the counterchecking system (Kujuna, 2020:34). As a result, in a system that is operated manually, the roles of authorization, execution, custody, and recording must be divided among distinct individuals. In an accounting system that is computer-based, the roles of system development and day-to-day operations should be divided among distinct individuals (Agyapong, 2017:53).

### **2.5.3 Authorisation and approval**

Two of the core concepts of control are authorization and approval. These involve protocols to ensure that transactions will only be executed by authorised personnel and that unauthorised personnel should not be able to access or modify previously recorded transactions (Kujuna, 2020:15). For example, no organisation will permit employees to access computer records if such records are not required for them to do their jobs. According to Francis and Imiete (2018:84), the following authorization guidelines apply to all organisations. In the first instance, permission to engage in business on behalf of the organisation must be consistent with the responsibilities associated with the position or function of an employee. Further, according to Sseunjogi (2018:15), in order to ensure that an activity is in accordance with departmental and organisational objectives and goals, it is necessary for company transactions to be duly approved and authorised by senior personnel. For example, a department may have policies allowing purchase requisitions, but would also require approval of invoices by a Director. It is imperative that the individuals responsible for authorising transactions possess both the final authority to carry out the transaction and the necessary expertise to impact their decision of approval (Agyapong, 2017:53).

### **2.5.4 Reconciliation and review**

Due to the fact that reconciliation and review are designed to provide a reasonable assurance on the accuracy of financial records by continuously comparing data recorded in the accounting information system with source documents, it is classified as control activities. Reconciliation of control accounts in the accounting system ensures that processed transactions are matched against the bank statements to alleviate any errors or discrepancies, according to Daka (2020:19). Performance

evaluations of specific functions typically draw attention to operational, financial, and compliance concerns; reconciliations are also a very useful tool for upholding accountability for functions (Agyapong, 2017:54; Kujuna, 2020:34). Reconciliation primarily focuses on examining financial activities and transactions to make sure the presented data is accurate. For example, the source documents for each activity should be cross-reviewed to ensure that the transactions have been appropriately documented in the appropriate books.

### **2.5.5 Physical control of safeguarding assets**

To prevent the assets of an organisation from being physically destroyed, physical control must exist. All tangible assets, such as money, machinery, and equipment, should be physically secured (Agyapong, 2017:54; Kujuna, 2020:15). Additionally, periodic inventory checks guarantee that the stock matches the control records (Sserunjogi, 2018:15). Because liquid assets, important papers, crucial systems, and private data need to be protected from unauthorised acquisition, use, or disposal, this control activity is essential (Alemu, 2020:13). The best way to safeguard these assets is usually to restrict access to them, using information technology controls like passwords and data encryption or physical controls like alarm systems and locked doors, among other measures (Kujuna, 2020:15).

### **2.5.6 Adequate documentation**

According to Alemu (2020:12), the creation and use of approved, pertinent documents improves the precision and thoroughness of capturing the required, pertinent transaction data. Electronic or paper-based documentation is possible. Pre-numbered documentation, prompt preparation, and simplified design are some of the suggested guidelines for creating trustworthy documentation and obtaining sufficient controls (Agyapong, 2017:54).

## **2.6 Potential benefits of internal control systems**

Depending on a number of variables, including the project being carried out, the funding sources, and the manner in which it employs its resources, every business organisation is susceptible to some level of risk (Adetula, 2020:4506). When errors

and irregularities are discovered and eliminated early on, internal controls are essential (Bitali, 2019:40). Bubilek (2017:23) asserts that effective internal controls are critical to guaranteeing the achievement of an organization's goals and objectives. For management decision-making, such controls offer trustworthy financial reporting (COSO, 2017). To reduce the possibility of public scandals, they also serve to ensure that all relevant laws and regulations are followed (OECD, 2017:3). Effective internal controls also support streamlined operations and safeguard the organization's reputation (Younus and Kassim, 2019:1). A cautionary note is sounded by Ibrahim et al., (2017:686), who assert that overly-stringent internal controls have the effect of decreasing productivity, they make transactions more complex and add no value to some activities. Such overly-stringent measures should thus be avoided in an effective control system.

Through the implementation of an efficient internal system, senior executives and management can better ensure that staff members follow government laws and regulations as well as internal policies and procedures when performing their job functions (Bitali, 2019:1). Punitive measures ought to be enforced in the case of non-compliance. The repercussions of non-compliance could include punitive regulatory actions like fines and legal action.

A further benefit of internal control systems is to assist a business in enhancing its operational systems. In this regard, according to Tjueza (2018:2), the presence of a financial system enables financial departments to create appropriate and useful policies that employees must follow when handling financial matters. All businesses and organisations are typically subject to internal control in financial accounting and reporting procedures (Monteiro et al., 2021:287). It should also be noted that accurate transaction recording and the creation of trustworthy financial reports depend heavily on internal controls. This is also necessitated by the fact that a large number of transactions and rulings are made daily in the course of various business activities (Sserunjogi, 2018:11). From a reporting and compliance point of view, organisations are legally required to generate an annual report which must provide complete and accurate financial statements. Some organisations also generate financial reports and statements at the end of each quarter and month (Muhunyo, 2018:21). These

statements consist of a cash flow statement, a retained earnings statement, and an income statement for the balance sheet.

Thus, the absence of sufficient controls to guarantee accurate transactions recording could lead to untrustworthy financial data, which, when presented publicly as required by law, could damage its reputation among stakeholders, authorities and the general public (Bitali, 2019:5).

It must be noted that because controls are carried out by people, the required measures can be circumvented by collusion, management override, human error and judgemental uncertainty (Alemu, 2020:13). Employee collusion could occur in the absence of strong internal control measures (Daka, 2020:18). An efficient internal control system acknowledges its inherent limitations and looks for ways to reduce these risks in the system's conduct, design and implementation (Tenbele, 2019:144). An efficient system will not, however, completely remove these risks. Effective internal control systems, including those who oversee financial reporting, offer a reasonable level of assurance rather than a guarantee that the organisation will meet its stated goals for operations, reporting and compliance (Francis and Imiete, 2018:79).

There is much that internal control systems can do to safeguard its accounting data integrity and prevent errors and irregularities (Masania, 2018:203). Nevertheless, it is critical to acknowledge some of the fundamental shortcomings of internal control systems. For example, errors in control performance can arise from misinterpreting instructions, making poor decisions, being careless or distracted and being tired (Ogunmakin, 2020:13). Furthermore, top management can easily evade internal control in the absence of the board of directors' active participation and an efficient internal audit department. The implementation of an internal control system does not mean that the organisation is completely protected from inefficiencies and malpractice. From an accounting point of view, controls that offer complete protection against fraud and waste are impractical; the best that can usually be done in this area is reasonable assurance (Okol, 2021:6). It must be remembered, too that cost considerations may limit how much a business can implement in terms of controls.

Expanding on the practice of collusion as indicated above, it ought to be remembered that when people work together, they can change financial data or other management

information in ways that the control systems are unable to detect. Employees banding together to perpetrate fraud, the business finds methods to evade existing internal controls (Pan et al., 2023:65). When multiple workers handle identical financial data, they have the ability to alter the information to suit their own needs. They could exchange passwords, giving each other access to data without anyone else having to go over the work. They can approve each other's transactions and fabricate fake transactions to embezzle funds from the company. For instance, there may be collusion between a customer, supplier, or co-worker and an employee who handles a crucial control function (Owusu-Ansah, 2019:193). At a different level, multiple tiers of operating unit or sales management may conspire to get around controls in order to meet incentive targets or budgets for reported results.

It may also be possible for high-level employees to disregard established policies or procedures in order to serve their personal interests. This unsavoury practice is not the same as management intervention, which is when management deviates from established guidelines for justifiable reasons. Such interventions by management may also be motivated by dubious reasons. For a variety of reasons, management may override control: to meet sales or earnings targets in order to support performance-based bonus pay-outs; to boost reported earnings to meet unrealistic budgets; to increase the entity's market value prior to a public offering or sale; to appear to cover violations of debt covenant agreements; or to conceal a failure to comply with legal requirements (Abei, 2021:54; Bishop et al., 2019:395). Deliberately lying to bankers, attorneys, accountants, and vendors, as well as purposefully presenting fictitious purchase orders and sales invoices, are examples of override practices (Owsusu-Ansah, 2019:208).

## **2.7 Implementation of internal control in the Higher Education**

### **Sector**

Currently, all South African public universities are corporate entities created by parliamentary acts that specify their functions, the authority of their governing bodies, and the roles and responsibilities of the Council, which is the supreme governing body of each university. Higher education institutions must guarantee the sufficiency of control systems, the accuracy of data, and the effective use of organisational

resources in order to achieve their goals (Kujuna, 2020:15; Nganga, 2015:11). Due to their funding from the government and other stakeholders as well as the volume of transactions they handle, higher education institutions, both public and private, are under pressure to include proactive measures in internal control procedures to improve accountability. Therefore, internal controls continue to be the only means by which public organisations could guarantee the security of student data and the correctness and dependability of their financial transactions (Kujuna, 2020:15; Nyakamba et al., 2017:2543).

### **2.7.1 Practices in the higher education sector**

The executive management of organisations uses specific strategies to guarantee the application of internal control. The higher education sector uses internal control practices, which include internal auditing, internal review, budgeting, reporting, organisational structure, policies, administrative and operational procedures, accounting, and strategic planning (Sofyani et al., 2022:145). Top management establishes these internal controls to guarantee that the organisation operates in a systematic way, protects its assets, and ensures that its records are accurate and reliable to the greatest extent possible (Tijueza, 2018:52).

An organisational structure in the context of universities is the deliberate arrangement of the tasks and duties delegated to various employees at various levels, with the goal of assisting and guaranteeing the implementation and upkeep of internal controls within the establishment (Okol, 2021:15). Within a public institution, the organisational structure, which is approved by Council, shows the reporting lines, accountability levels, and hierarchies (Bitali, 2019:4).

Apart from the organisational structure, policies must be put in place at all public institutions to govern their operations and provide direction for their execution (Solikin et al., 2018:371). These policies and guidelines may take the form of White Papers, laws, rules, or directives. They offer the legal framework that managers and public servants must operate within in order to carry out their obligations. Public policies legally require officials to carry out these duties and, in this regard, Sambo and Umoghani (2018:82) noted that officials must be aware that corrective action or punitive action will be taken against them if they do not adhere to legislative policies.

Procedures are methods used to carry out specific tasks in compliance with regulations. According to Sityata et al. (2021:195), in order to prevent potential irregularities within higher education institutions, these procedures must be implemented correctly. Before beginning any activity, the approved procedures are explained to the staff so they can follow along step-by-step as they complete the assigned task (Solikin et al., 2018:371). One of the most crucial financial controls over operations and resources is accounting. If done correctly, the financial data it generates can be analysed, and instances of deviations can be used as an internal control measure to determine why they occurred (Ammar et al., 2017:108). Procedures are the foundation of a public institution's operational activities and provide organisation for transactions (Bitali, 2018:2).

### **2.7.2 Challenges of implementing internal controls**

Internal control implementation is not without its difficulties. Organisations may have excessive, unnecessary, or out-of-date internal controls as a result of not implementing adequate control systems. Employees may become confused and frustrated by such poorly implemented controls, which could discourage them from being applied (Bitali, 2019:6). Therefore, it is critical to monitor internal controls to ensure they continue to serve a function and don't become outdated (Alemu, 2020:13).

Furthermore, there comes a point at which controls become so effective that they may actually become less effective. As a result, their cost might exceed the risk they are intended to mitigate (Alemu, 2020: 13). According to Gokoglan et al. (2022:84), there could be a financial and human cost associated with maintaining an internal control system that keeps a function or activity on track. There may also be a tendency for employees to focus on fulfilling procedural requirements while losing sight of the operational goals that need to be accomplished (Kujuna, 2019: 17). Internal controls can therefore cause mental stiffness and decrease flexibility. Additionally, they may foster a slavish adherence to protocols in place of using logic and common sense.

Muhunyo (2018:8) asserts that people typically oppose controls, particularly if they were not involved in their creation or do not comprehend the goal that needs to be accomplished. From the perspective of individuals impacted, controls may become overly significant, with the exception of situations in which they serve as a foundation

for incentives and penalties. When internal controls are created and implemented, behaviour has to be considered (Abdullahi and Muturi, 2016:763). Employees can be informed or included in the design of the controls if they are impacted (Wei-guo, 2018:142). Individuals who willingly adhere to regulatory measures will possess an understanding of the objectives that the implementation of these controls aim to achieve. According to Adom-Frimpong (2019:24–25), a number of perfectly good internal control systems have failed in numerous organisations as a result of behavioural factors not being considered.

Furthermore, the incidence of inadequately implemented internal controls includes: unsatisfactory and declining service delivery, which has the unintended consequence of promoting collusion, fraud, embezzlements, cash or revenue loss, assets conversion from honest to deliberate errors, corruption, and a lack of accountability and transparency for revenue collection and other assets (Sambo and Umoghani, 2018:87–88). In addition, institutions may experience issues with liquidity, delayed financial reporting, and inadequate accountability for their financial resources (Masanja and Masimba, 2018:207). Other difficulties include the absence of a fraud control mechanism and insufficient internal control measures (Tjiueza, 2018:51).

## **2.8 Factors Influencing the Effective Implementation of Internal Control Systems**

The academic literature reviewed in this chapter reveals that there are several important factors influencing the effective implementation of internal controls. This section identifies and discusses these factors.

### **2.8.1 Communication**

To give a firm grasp of financial reporting and safeguarding controls, their functions, and the roles that different members of the organization play in relation to those controls (Agyapong, 2017:52) contends that communication stands as an essential element within internal controls, mirroring the need for information that organisations rely on to conduct their operations. Effective business operations require effective communication of expectations, responsibilities, and other matters (Vu, 2016:145). One aspect of effective communication is conveying an organization's code of conduct

to outside parties that the institution does business with (Wei-guo, 2018:142). This practice fosters trust amongst key stakeholders. Policy manuals, memos, letters, and oral communications are a few examples of the various formats in which communication can occur. The size and structure of the organisation determine the communication format. According to Akinleye and Kolawole (2020:407), managers should disseminate the information required for staff members to carry out their duties, for supervisors to oversee, and for accountable parties to make important operational and financial decisions.

### **2.8.2 Monitoring**

Monitoring is a procedure that evaluates the effectiveness of an organization's internal controls over time. It entails regularly evaluating the layout and functionality of controls and taking appropriate action when needed (Eke, 2018:37). Since organisations and the people who work there are always changing, controls must be evaluated over time to see if they are still applicable and capable of handling new risks to the organisation. Changes in staff, inadequate supervision or training, a lack of time or resources, or other pressures are a few reasons why control procedures may no longer work (Eton et al., 2022:367). Furthermore, the conditions and risks that control procedures were intended to address could alter, which would affect the efficacy of the control. The successful implementation of internal controls stems from the accurate and timely execution of planned actions designed to influence internal controls, a process guaranteed by a robust monitoring system (Agbenyo et al., 2018:53). Regular monitoring activities, such as internal audit appraisals and departmental self-assessments, also offer useful information. The design, implementation, and efficacy of internal controls should be evaluated and improved through a variety of management and supervisory tasks that are part of ongoing monitoring (Nugraha and Bayunitri, 2020:201).

### **2.8.3 Organisational values**

According to Luthans and Doh (2012), organisational culture is a framework for employees to share values and beliefs that aids in their understanding of their roles and the standards established within the company. A successful company is built on a foundation of regulations and procedures, leadership style, and organisational values, all of which are represented by an organization's culture (Pawirosumarto et al.,

2017:1340). According to Grigoropoulos (2019:171), the organization's standards of conduct and financial reporting are established by high-level management's strong moral principles and integrity. Values impact on a person's attitude towards internal controls and control consciousness, according to Anh and Thi (2020:134). According to Vargas-Hernandez et al. (2016) and Kujuna (2020:17), unless senior management personnel exhibit an organisational culture that values adherence to internal control policies, it is challenging to establish effective internal controls that improve an organization's performance and competitiveness.

#### **2.8.4 Management support and commitment**

A public institution's management is responsible for putting in place an effective internal control system to monitor and protect its resources. This management duty is a part of the larger management process, which also includes organising, directing, planning, and controlling (Gokoglan et al., 2022:89). The management's commitment and support are critical to the efficacy of internal controls. Such support encompasses a wide range of operations, including training initiatives, assisting quality control, and supplying required resources (Kalevor, Kesemekpor and Betakan, 2024; Rahim, Nawawi, and Salim, 2017:135–136). According to Gokoglan et al. (2022:89), the management also has to make sure that departments tasked with internal control have an adequate number of employees. They also encourage activities such as employee training, guarantee that an adequate budget is allocated for internal control studies, enhance the department's opportunities, and find ways to motivate staff members and identify their needs (Kalevor, Kesemekpor and Betakan, 2024). All of these factors have a positive impact on the efficacy of the public internal control system.

#### **2.8.5 Oversight Provided by a Board of Directors, Audit Committee or Government**

According to Tian and He (2016:82), an independent third party's supervision of controls has a major impact on the entity's internal control framework and financial reporting. In addition to approving the organisational structure and making sure senior management is keeping an eye on the efficiency of the internal control system, the board of directors is also accountable for understanding the risks the organisation

faces, establishing acceptable risk thresholds and making sure senior management takes the required actions to identify, monitor, and manage such risks.

### **2.8.6 Organisational structure**

The entity's organisational structure is suitably developed to support a strong control environment, claims Mire (2016: 54). Effective management of the organisation and support for efficient financial reporting are made possible by authority and responsibility, suitable reporting lines, and the unrestricted flow of information throughout the organisation (Thao, 2018:19). At every level of a hierarchy pyramid, there should be a distinct division of roles and responsibilities. Tasks and responsibilities need to be clearly defined, particularly when it comes to issues that are critical to the enterprise's health, such as assets, cash, the portfolio, and the critical role that departments play. The organisation should be made up of suitable and productive individuals. The entire labour pyramid needs to be properly arranged in terms of both quality and quantity.

### **2.8.7 The internal audit**

Ali (2018:219) posits that the effectiveness of internal controls, management support for internal audit, the size and competency of the internal audit department, and their independence are all significantly correlated. Since it keeps an eye on and assesses the overall effectiveness of the internal control system, the organisation needs an internal audit department. In order for management to use this data as a helpful tool to manage business risk, internal audit offers the possibility for more impartial and independent evaluation functions (Sambo and Umoghani, 2018:85). Furthermore, Tuan (2016:98) emphasize that the presence of an internal audit department enables organizations to conduct impartial and independent evaluations, providing management with valuable insights to effectively manage business risks.

### **2.8.8 Human resources policies**

Ensuring effective internal controls in respect of employees is a major responsibility of the human resources department. Policies and procedures pertaining to human resources convey to staff members the expected standards of honesty, moral conduct, and proficiency with internal controls (OECD, 2017:81). Regular staff turnover may

also be a symptom of a problem that warrants further investigation and risk assessment, particularly when it comes to the same job profile. Personnel changes jeopardise the effectiveness of particular internal controls or, in the case of some management roles, the effectiveness of the control framework as a whole. It is important that new employees receive training on internal control policies and procedures as well as their specific duties.

## **2.9 Research gap**

Various studies of a similar nature have been conducted in the higher education sector. A study by Wei-guo (2018:141) reviewed literature on internal controls at colleges and universities in China, utilising only secondary sources of data leaving a huge methodological gap. Solikin et al., (2018:370) analysed the implementation of effective internal control in higher education to produce a model that can be implemented in order to prevent fraud. The above study did not explore the factors affecting the implementation of internal control systems in monitoring financial resources. Moreover, a study by Lemi (2015) focused on the assessment of internal control effectiveness in selected Ethiopian public universities. Although the findings of the study are importance to literature, the study is necessitated due to the fact that organisational processes continue to evolve due to the external environments which may make the previous findings inadequate, obsolete and outdated.

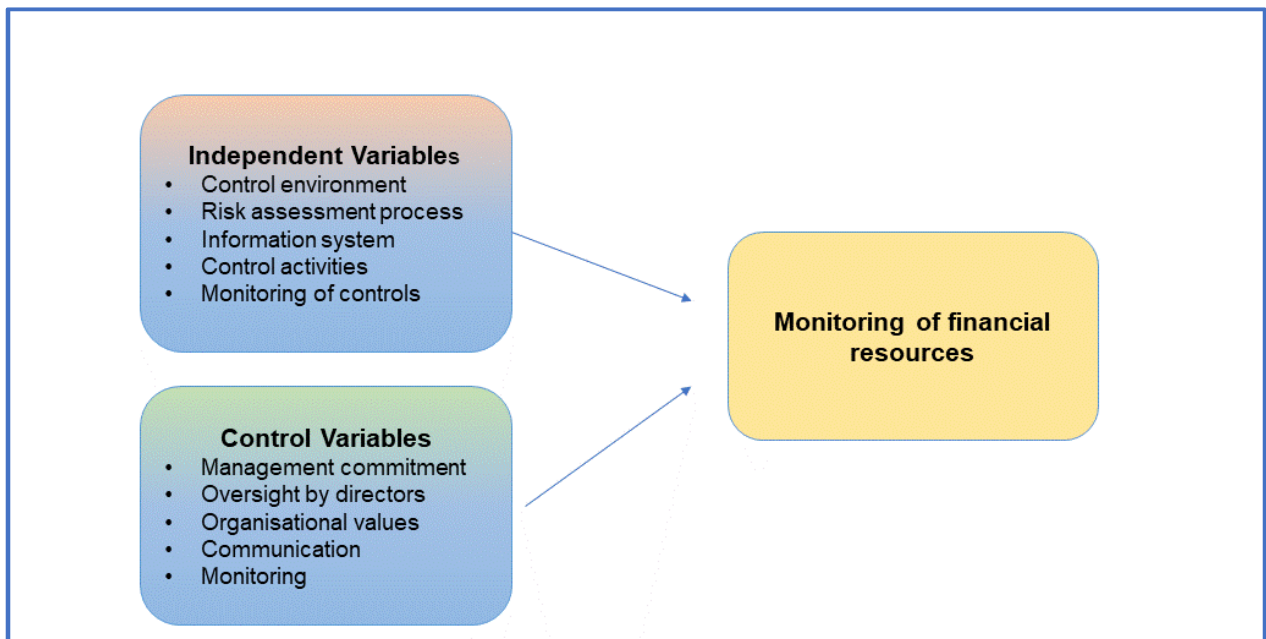
Although Adetula et al. (2020:4505) examined internal control systems in the Nigerian tertiary institutions, higher education in different countries are governed by various different laws and regulations and influenced by different cultures. Hence, a study that assesses the effectiveness of internal control systems in the context of South African universities is necessary. Sityata, Botha and Dubihlela (2021:195) evaluated the risk management procedures at South African universities by examining the degree of risk management transparency recommended by King IV. This study focused on risk management and did not examine other elements of internal controls such as the control environment, control activities, information systems and communicating and monitoring.

Based on the above research gaps, there appears to be a need to conduct a study that assesses the effectiveness of internal control systems in monitoring financial

resources in the South African context using a case of Durban University of Technology. The current study also examines the factors affecting the implementation of internal control systems in monitoring financial resources. This study utilised both primary and secondary sources of data to produce reliable and valid findings.

## 2.10 Conceptual framework

A conceptual framework, according to Grant and Osanloo (2014:17), provides a logical structure of related concepts that help illustrate or paint picture or depicting a visual representation of how concepts in a study relate to one another within a theoretical framework. The conceptual framework presented in Figure 2.1 offers a structured view of how internal control systems (independent variable) impact the monitoring of financial resources (dependent variable). It also identifies control variables that influence the relationship between internal controls and financial monitoring outcomes. This framework reflects the dynamics within organizations, demonstrating that the effectiveness of financial resource monitoring is dependent on how well internal controls are designed, implemented, and supported within an operational environment.



**Figure 2.1: Conceptual Framework of the Study**

**Source: Researcher's own work**

### **2.10.1 Internal control systems and their relevance**

Many scholars have provided varying definitions of internal control systems. The term "internal control system" was originally conceived in 1949 by the American Institute of Accountants as a procedure carried out by the directors, management, and other staff members with the intention of offering a reasonable level of assurance regarding the accomplishment of goals (Bubilek, 2017:27; Kalevor, Kesemekpor and Betakan, 2024). According to Sserunjogi (2018:1), it is a system that is intended to assist an organisation in achieving particular goals or objectives and is influenced by the people, management information systems, work and authority flows, organisational structure, and people. Conversely, Alemu (2020:10) characterises internal control as the implementation of policies, procedures, practices, and organisational structures to furnish a reasonable assurance regarding the attainment of an organization's business objectives and the prevention, detection, and correction of undesirable risk events, based on compliance or management-initiated concerns. It is also a method for allocating, overseeing, and evaluating an organization's resources (Sserunjogi, 2018:1). Rija and Rubino (2018:21) describe internal controls as "a set of directives, procedures, and operational practices defined and adopted by the company to reach, through a proper process of identification, measurement, management, and monitoring of the main risks, strategic and operational objectives of reporting, and compliance." The authors (Rija and Rubino (2018), mentioned earlier also state that internal control systems verify the accuracy and completeness of the records and guarantee that management policies are followed. They also protect assets to the greatest extent possible. Control activities are a necessary component of a strong internal control system (Kalevor, Kesemekpor and Betakan, 2024; Mwakimasinde, Odhiambo, and Byarhanga, 2014:66). These typically fall into one of two categories: detective control activities, which aim to identify undesired "occurrences" after the fact, or preventative control activities, which try to discourage instances of errors or fraud.

### **2.10.2 Financial resources and their monitoring**

The organisation's financial resources are its foundation. These are resources that are available to an institution for use in spending and business administration, such as cash, liquid securities, and credit lines (Francis and Imiete, 2018:78). Financial resources are regarded as a company's lifeblood since they allow it to thrive and

endure (Agyapong, 2017:43). Having sufficient financial resources allows an organisation to fund its operations, pay its employees, acquire necessary assets and meet its financial obligations such as loan repayments and supplier payments (Kalevor et al. 2024). Financial resources also provide the flexibility to respond to unexpected events, market fluctuations and economic uncertainties. With a strong financial foundation, an organization can weather challenging times, adapt to changing circumstances and take strategic initiatives to remain competitive in the market place (Otoo et al., 2023:121). Monitoring financial resources involves implementing and monitoring internal control systems to safeguard assets, prevent fraud and guarantee adherence to financial policies, regulations and legal requirements (Kalevor et al., 2024); (Otoo et al., 2021). By establishing appropriate controls, organizations can reduce the risk of financial mismanagement, errors and fraudulent activities, enhancing the integrity and reliability of financial information (Kalevor et al., 2024); (Otoo et al., 2023:121).

### **2.10.3 Control variables and their impact on internal control systems**

The conceptual framework highlights several control variables that influence the relationship between internal control systems and financial monitoring. These variables reflect contextual and organizational factors that can either facilitate or hinder the effective implementation of internal controls.

### **2.10.4 Operationalisation of variables**

The model used for this study was stated as follows; to establish the relationship between internal control system and monitoring financial resources. There are five independent variables (control environment, risk assessment process, information systems, control activities and monitoring of controls), five control variables (management commitment, oversight by directors, organisational values, communication and monitoring) and dependent variables (monitoring of financial resources), considered for the statistical analysis that can be evaluated in different ways. Thus, it is essential to determine an operationalising structure of these variables.

The organisation's general perspective on internal controls, including governance structure and moral principles, is known as the control environment. A survey

instrument that measures leadership integrity, organisational culture and the existence of ethical guidelines can be used to evaluate this. Adeyemi and Olarewaju (2019:136) employed a scale in their study to measure participants perceptions of the control environment. This measurement was used in the current study. The risk assessment procedure also included internal control systems. This is the methodical process of identifying and evaluating risks that could make it more difficult to accomplish goals. A checklist approach that rates an organization's risk assessment procedures against recognized frameworks such as ISO 31000 can be used to operationalise this. Past studies by Kisanyanya (2018:36) and Kalevor et al., (2024:40) highlights the effectiveness of structured risk assessment tools.

Financial data is gathered, stored and analysed using procedures and technologies known as information systems. Performance metrics, like uptime percentage and user satisfaction surveys, can be used to assess the functionality and dependability of information systems. Research by Kisanyanya (2018:8) and Ibrahim et al., (2017:686) highlight the significance of information systems in improving financial monitoring. The particular rules and practices that help reduce risks and guarantee the accomplishment of organisational goals are referred to as control activities. Internal audits and compliance checks can be used to measure the implementation rate of control activities, which can be used to quantify this. This measurement was used in research by Eton et al., (2022:364), which suggested that financial oversight is greatly impacted by the frequency and efficacy of these activities.

Monitoring of controls is the ongoing assessment of the effectiveness of internal controls. Monitoring can be assessed through internal review processes and the frequency of audits. Studies by Eton et al., (2022:364); Ibrahim et al., (2017:686) and Otoo et al., (2023:120), used this measurement, indicating that regular monitoring correlates with improved financial reporting accuracy.

The study's control variables included management commitment, director oversight, organisational values, communication and monitoring. The level of support and emphasis that management places on internal control procedures is known as management commitment. Surveys and interviews that gauge managements participation in control activities can be used to evaluate this. This performance measurement was used in research by Korir, Naibei and Langat (2022:153) to support

the idea that internal control frameworks are improved by strong management commitment. The board of director's responsibility for overseeing and directing managements control initiatives is known as oversight. The number of board meetings and the existence of special oversight committees are indicators of this.

Studies by Kalevor et al., (2024:40) as well as Muhunyo and Jagongo (2018:2) indicate that active board oversight positively influences control effectiveness. Organisational values are the core principles and standards that guide behaviour within the organisation. This can be assessed through employee surveys that gauge alignment with organizational values. Research by Eton et al., (2022:367) demonstrates that strong organisational values correlate with better compliance and control. The exchange of information about internal controls within an organisation is known as communication. Surveys on communication and feedback systems can be used to assess this. Ibrahim et al., (2017:684), study shows that efficient communication techniques greatly increase control efficacy and awareness. Monitoring is the methodical examination of procedures and safeguards to guarantee adherence to regulations and efficiency. The frequency of monitoring operations and the reporting of results can be used to quantify this. Using this measurement, Eton et al., research from 2022 indicates that strong monitoring procedures result in better financial resource management.

Monitoring of financial resources depicts the dependent variable in this study. These are the processes and activities involved in overseeing the organization's financial assets and expenditures. This can be assessed through financial audits and the analysis of budget adherence. Studies by Sambo and Umoghani(2018:82) as well as Tu, Lan, Huy, and Thuy (2020) indicate that effective monitoring of financial resources is crucial for maintaining organizational integrity and performance.

The study measured the indicators related to monitoring of financial resources using a Likert scale. A rating scale that captures respondent's perceptions or opinions on each indicator was used from 1 to 5, ranging from strongly disagree to strongly agree respectively. The indicators include the frequency of financial transaction monitoring, timeliness and accuracy of financial statement reviews, quality of internal audit activities related to financial resources, adherence to budgetary control measures,

effectiveness of cash flow management practices and compliance with financial policies and regulations.

## **2.11 Chapter summary**

The chapter presented reviewed literature from other relevant studies that covered the concept of internal controls and their impact on monitoring financial resources. The chapter also outlines the empirical review of the guidelines for effective implementation of internal control systems, the implementation of internal control in the higher education sector, the potential benefits of internal control systems and the factors affecting the effective implementation of internal control systems. The following chapter will discuss the research methodology that was used by the study to collect, analyse and present data.

# **CHAPTER THREE**

## **RESEARCH METHODOLOGY**

### **3.1 Introduction**

This chapter describes the process and procedures used to gather information from various sources in order to meet the research objectives. The research philosophy that guided the researcher and research approach used are discussed. The chapter explains the research design and defined the research population where the sample was selected. Data collection procedures and instruments are discussed, including the data analysis techniques and tools used. The procedures followed to guarantee the validity and dependability of the data gathered are detailed in this chapter. The chapter specifies the steps taken to ensure that data collected is valid and reliable. Ethics that were considered to make sure that the respondents concerned suffered no harm were also covered.

### **3.2 Research philosophy**

The research philosophy underpinning the study was positivism, which holds that knowledge can and should be developed objectively, free from the influence of the researchers' values (Chege and Otieno, 2020:34). Positivism assumes that reality is given objectively and is measurable using properties that are independent of the researcher and the research tools used at the ontological level; in other words, knowledge is quantifiable and objective (Artino, Konge and Park, 2020:691). Following this, the study aimed to assess the effectiveness of internal control systems in monitoring financial resources at the Durban University of Technology and generalise the results to South African Universities as a whole. On a metric scale, participants were asked to indicate how much they agreed with the statements provided, ranging from strongly disagree to strongly agree. The respondent's knowledge, perceptions, attitudes and opinions were thereafter quantified to enhance precision in describing the variables of the study and their relationships.

The study also aimed to identify the challenges in implementation internal control systems for the monitoring of financial resources at DUT. Further, the factors affecting the successful implementation of internal control systems in monitoring financial

resources at DUT were identified for further analysis. There has been sufficient literature available on the factors and challenges faced in the implementation of internal control systems and financial resources metrics, which necessitated the positivist paradigm and quantitative research approach. A few "known variables" were put to the test by the issues brought up. For this reason, scaled, closed-ended questionnaire survey questions were used to collect data. Tanujava et al., (2023:90), assert that structured survey questions use response scales, such as the Likert scale, "to allow respondents to express both the direction and strength of their opinion about a topic". This quantification is required in order to convert the subjectivity of an individual into an objective reality. The positivist philosophy, according to Wilkinson and Stanely (2019:64), uses a quantitative research approach that generates numerical data and hard facts by using logical, statistical, and mathematical techniques to produce findings that can be applied to other cases or the entire population.

### **3.3 Research approach**

A research approach, according to Creswell and Creswell (2017:40), primarily establishes the framework for the research strategy and provides direction to the research methods employed. One can distinguish between two types of research approaches: deductive and inductive (Saunders et al., 2019:51). For this reason, the deductive research approach was used in the current study. The aim of the deductive approach is to ascertain whether the predictive generalisations of a theory hold true by investigating an identified problem using a theory that is tested and composed of variables that are measured with numbers and analysed statistically (Gemma, 2018:3). The effectiveness of internal control systems in monitoring financial resources was also evaluated in the study, and quantitative research methods were found to be more effective than qualitative methods in establishing a cause-and-effect relationship between two variables. In addition, the study identified and evaluated the difficulties encountered in putting internal control systems into place as well as the important external and internal variables that affect these systems' ability to monitor financial resources. There is sufficient research on the challenges and factors metrics to support the quantitative study, so a questionnaire with closed-ended questions requiring quantitative analysis was created.

### **3.4 Research design**

The efficacy of internal control systems in overseeing financial resources was evaluated by the study. A descriptive research design was appropriate for this study, and the quantitative research method was utilised to determine the causal relationships between these variables through the use of mathematical, computational, and statistical methods (Wilkinson and Staley, 2019). Research designs generally specify the methods, schedules, and locations for data collection and analysis. According to Ansari et al. (2022:1132), it is an investigation plan or structure designed to provide answers to the research questions. The study employed a descriptive survey design because the researcher was interested in the topic's current state of affairs without using any kind of manipulation (Ansari et al., 2022:1133). This design was utilized in the study to collect quantitative data, which was then analysed using statistical software. The design allows the use of quantitative methods such as surveys and questionnaires are used in this current study where the researcher asked all participants identical questions in the same order. Participants selected options from "closed-ended" or fixed response categories. The benefit of this rigidity, according to Apuke (2017), is that it makes it possible to compare responses meaningfully between study sites and participants. That necessitates, though, that the researcher has a solid grasp of the pertinent questions to pose, the appropriate approach to take, and the gamut of potential answers. The study's instrument, which was created using established variables from the empirical review, was also validated; the procedure for this will be covered in section 3.8 of this chapter.

### **3.5 Population**

The population of the study, which consists of the people, pairs, groups, organisations or other things that one aims to comprehend and to whom the study results may be generalized or transferred, is the main group that the research is concerned with (Shukla, 2020:1). The case study is the Durban University of Technology, which makes the staff of the Finance Department head office (Durban) the target population for the study. A list of staff who are employed in the Finance Department was obtained from Human Capital Services. The list consists of eighty-five (85) personnel, which makes it the target population of the study.

### **3.6 Sampling methods and techniques**

Casteel and Bridier (2021:345) defines sampling as a method of choosing a subset of units from a big group with a goal of analysing them. When it is not practical to measure the entire population, the fundamental objective of selecting a small group from a big group is to create a statistically valid association of the entire population from a small percentage. Samples include elements that have been chosen with the intention of examining those elements to learn more about the rest of the population (Saunders, Lewis and Thornhill, 2019; Taherdoost, 2017:237). The non-probability sampling method was used to include respondents who were familiar with the effectiveness of internal control systems in monitoring financial resources. The study used census sampling because the population was small. According to Sakyi, Musona and Mweshi (2020:296) and Taherdoost (2017:238), the census method involves examining all members of a population on the statistical list. Census sampling is a straight forward way to get the most accurate, intensive and in-depth information covering many facets of the problems. Shukla (2020:5) also added that since, in this type of investigation, every item of the sample is considered, the conclusions are more accurate and reliable. The use of census sampling can very expensive and time consuming, however a significant population of eighty-five respondents enabled the researcher to use the sampling method.

### **3.7 Data collection and instruments procedures**

This section identifies the procedures applied to for the collection of data and statistical analysis.

#### **3.7.1 Data collection procedures**

Since the study focuses on activities pertaining to the Finance department of Durban University of Technology, the questionnaire was distributed to the finance personnel. During data collection, quantitative data was collected from participants with the standard questionnaire. These questionnaires were distributed electronically by means of e-mail. The choice of the instrument was based on the researcher's assumption that the respondents are those who actively participate on the online network services. The questionnaire was harnessed as the main source of information

to assess the effectiveness of internal control systems in monitoring financial resources (Sakyi, Musona and Mweshi, 2020; Saunders, Lewis and Thornhill, 2019).

### **3.7.2 Data collection instrument**

The respondents' answers were rated using a Likert scale (ranging from 1 to 5) on a standard questionnaire consisting of closed-ended questions. Likert-scale questionnaires allow for the fast collection of data from a large number of respondents (Sakyi et al., and Saunders et al.). The information can be contrasted, merged and compared with qualitative methods of acquiring data such as interviews, participant observation and open-ended questions (Sakyi et al., and Saunders et al.). The respondents provided highly reliable ability estimates. Another advantage of this type of questionnaire is that the validity of the interpretations made from the data can be established through a variety of means (Sakyi et al., 2020:298; Tanujava, Prahmana and Mumu, 2023:100).

## **3.8 Data analysis**

After the questionnaires were received, each one was reviewed and answers that were illegible or missing were marked as "missing." This made the data analysis simpler without changing how the data was interpreted in any way (Wu, Zhao and Fils-Aime, 2022:100206). To produce the diagnostic data, the response values were first entered into an excel spreadsheet and then exported into the Statistical Package for the Social Sciences (SPSS) version 21. To analyse the data, both descriptive and inferential statistics were used in correspondence to previous related studies by Eton et al. (2022:368), Ibrahim et al. (2017:689) and Otoo et al. (2023:140). This included factor analysis, correlation, mean comparisons, multivariate analysis of variance, and strength of relationship calculations, among other statistical applications and computations.

### **3.8.1 Descriptive analysis**

In this study, the collected questionnaire data was analysed using descriptive statistical techniques such as calculating means and standard deviations for each questionnaire item to understand the central tendencies and variability in the responses (Sakyi et al., 2020:298; Tanujava, Prahmana, and Mumu, 2023:100). The

analysis was also used to examine the frequency distributions of responses to identify the most common perceptions and experiences (Sakyi et al., 2020:298). Cross-tabulations were also conducted to explore potential differences in responses based on respondent characteristics. The analysis allows more objective and measurable assessment of the stakeholder's perceptions, compared to relying solely on qualitative data (Sakyi et al., 2020:298; Tanujava, Prahmana, and Mumu, 2023:100).

### **3.8.2 Inferential Statistics**

To examine the factors influencing the effectiveness of the organization's internal control system, this study employed a range of inferential statistical techniques in correspondence with previous studies by Eton et al. (2022:370), Ibrahim et al. (2017:689) and Otoo et al. (2023:123). First, multiple linear regression analysis was utilised. Furthermore, the Sobel test for mediation analysis was incorporated to examine the potential indirect effects, where one internal control component may serve as a mediator in the relationship between another component and the overall internal control performance (Masanja and Masimba, 2020).

- **Mean comparison**

The mean comparison presents the mean scores calculated for each questionnaire item or constructs measured using the Likert scale (Sakyi et al., 2020:298; Tanujava et al. 2023). The mean scores indicate the central tendency of the responses, aiding the understanding of the overall perceptions or experiences of the respondents regarding the internal control systems (Saunders et al., 2019).

- **Standard deviation**

The standard deviation presents the standard deviation values calculated for each questionnaire item or construct. The standard deviation provides a measure of the dispersion or variability in the responses, indicating how much the individual responses tend to deviate from the mean (Saunders et al., 2019). It aids in understanding the level of agreement or consensus among the respondents regarding their perceptions of the internal control systems (Saunders et al., 2019).

- **Regression analysis**

Regression analysis is a statistical technique used for analyzing the relationship between one or more independent variables and a dependent variable (Tranmer et al., 2020). This method evaluates how variations in the independent variables impact the dependent variable, and the results can be represented through equations, tables, or graphs (Saunders et al., 2019). In this study, multiple linear regression analysis was applied to model the influence of five internal control components—control environment, risk assessment process, information systems, control activities, and monitoring of controls—alongside five control variables (management commitment, director oversight, organizational values, communication, and monitoring) on the dependent variable, monitoring of financial resources.

The operationalization of these variables, including measurement and estimation techniques, is detailed in Chapter 2, Section 2.10.3. This approach enabled the researcher to assess the relative importance and statistical significance of each component in predicting overall internal control system performance. The findings align with prior research by Eton et al. (2022:370), Ibrahim et al. (2017:690), and Otoo et al. (2023:125), which similarly examined the predictive strength of internal control factors on financial monitoring efficacy.

The following regression model was developed to illustrate these relationships:

$$MFRI_{it} = \alpha_0 + \beta_1 CE_{it} + \beta_2 RA_{it} + \beta_3 IS_{it} + \beta_4 CA_{it} + \beta_5 MC_{it} + \beta_6 MCo_{it} + \beta_7 ODi_{t} + \beta_8 OVi_{t} + \beta_9 Co_{it} + \beta_{10} Mo_{it} + \varepsilon_i$$

Where

MFR	monitoring of financial resources
$\alpha$	constant term
CE	control environment
RA	risk assessment processes
IS	information systems
CA	control activities

MC	monitoring of controls
MCo	management commitment
OD	oversight by directors
OV	organisational values
Co	communication
Mo	monitoring
$\varepsilon$	error term or residual

### **3.9 Validity and reliability**

The validity and reliability of the research instrument are further discussed under the following headings:

#### **3.9.1 Validity**

Validity, in the words of Kubai (2019:2), is the ability of a data collection tool to measure what it was intended to measure. Stated differently, an instrument is deemed valid for a study if it accurately measures the study's objectives (Modaryono et al., 2019:1-2). The content of the questionnaire was validated through pre-testing, as described in section 3.9.3. Furthermore, the researcher self-administered the questionnaires in order to ensure validity, and some control questions were included to guarantee consistency as suggested by (Creswell and Creswell, 2017:40; Saunders et al., 2019:51). Additionally, the research project supervisor evaluated the research tool critically and matched its contents to the study's objectives and research questions.

#### **3.9.2 Reliability**

To find out how reliable the variables were, a reliability test was performed. The current control environment, risk assessment, control activities, information and communication, monitoring, factors influencing the effectiveness of internal control, and the difficulties in implementing internal controls were all tested for the Cronbach's Alpha coefficient in order to determine the reliability of the measures provided by the questionnaire items. As suggested by Nunnally (1967 and 1978), the Cronbach's

alpha coefficient acceptability scale fell between 0.70 and 0.71. The outcomes are displayed in Table 3.1.

The result revealed a Cronbach Alpha of 0.768 for control environment (4 item), 0.829 for risk assessment (4 items), 0.718 for control activities (4 items) and 0.730 for monitoring activities (4 times). factors with 5 items has Cronbach's alpha of 0.771 and the challenges with 5 items had 0.811 Cronbach's alpha. All variables have an alpha above 0.70 which in theory is considered good (Taber, 2018:1277). The findings show how well the variables capture a unidimensional latent construct, pointing to the relatively high internal consistency of the study's variables.

**Table 3.1: Reliability test**

<b>Variables</b>	<b>Name of variable</b>	<b>Cronbach's Alpha</b>	<b>No: of Items</b>
<b>Current control systems</b>	Control environment	.768	4
	Risk assessment	.829	4
	Control activities	.718	4
	Communication	.730	3
	Monitoring	.830	4
<b>Challenges of implementing Internal Controls</b>	Challenges	.811	5

### 3.9.3 Pilot study

The researcher conducted a pilot study to evaluate the feasibility, timing, costs, and sample size requirements of the study, as well as to identify any research design issues before the main research was undertaken. To ensure that the pilot study participants did not overlap with the main study sample, this pilot was conducted on a small scale with five respondents from the Finance Department (Midlands Campus) and the Student Housing Department. These participants, who were not part of the main study's target population, were selected using a convenience sampling technique. According to Bhardwaj (2019:161), convenience sampling typically involves the random selection of participants based on their accessibility and proximity

to the research. The main benefits of adopting this sampling technique are its low cost, high effectiveness and ease of implementation (Bhardwaj, 2019:161; Jager, Putnick, and Bornstein (2017:28). Respondents received the draft questionnaire from the researcher via Microsoft forms. The information gathered from the pilot study served as a “goodness of fit” test and guidelines for customising the instrument to the study's specifications, even though it was not utilised to address the research questions (Eton, Mwosi, and Ogwel, 2022). The pilot study also helped to reveal deficiencies in the design of the proposed questionnaires and data collection procedures and improve the quality of the main study (Woken, 2020:1).

### **3.10 Ethical considerations**

Prior to asking any respondents for information, consent was obtained from those who completed questionnaires. Confidentiality was maintained throughout to ensure that all ethical standards were met. To ensure anonymity and safety from any threat, the respondents names were withheld from the study. Additionally, a letter from the university was used to assure respondents on the measures taken to guarantee the privacy of any data collected and also served to advise respondents on the measures taken to guarantee the privacy of any data collected and the method used to obtain the data.

#### **3.10.1 Consent**

Before they could participate in the questionnaire survey, respondents were advised of the study's goal and given a guarantee of confidentiality. The researcher clarified the assurance of anonymity and confidentiality by reading the set of conditions to the respondents prior to the interview. Thus, all data received was with the full consent of the respondents involved.

#### **3.10.2 Protection from harm**

The researcher made sure that none of the questions in the questionnaire caused any harm or put the participants in danger by providing their responses. The researcher took steps to ensure the privacy of the shared information and limited its use to academic pursuits.

### **3.10.3 Anonymity**

The researcher used codes rather than participant names to identify people who took part in the study. The data was organized in a manner which made it impossible to identify specific individuals. The privacy of the respondent's answers was ensured by not asking respondents to include their names, addresses or cell phone numbers on the questionnaires.

### **3.11 Chapter summary**

The chapter describes the methods and techniques that were employed to gather data from different sources to achieve the research objectives. The research philosophy that guided the researcher and research approach used were also discussed. The chapter also explained the research design and defined the research population where the sample was selected. The data collection methods and instruments are discussed, including the data analysis techniques and tools used. The chapter also described the procedures used to guarantee the validity and dependability of the data gathered. Ethical considerations are also covered to make sure that the respondents are not harmed. The next chapter addresses data presentations, analysis and interpretation of findings.

# CHAPTER FOUR

## FINDINGS PRESENTATION, ANALYSIS AND DISCUSSION

### 4.1 Introduction

The purpose of this chapter is to present and analyse the data collected from respondents on the assessment of the effectiveness of internal control systems in monitoring financial resources at the Durban University of Technology. The data was collected and analysed to address the research questions as given in the first chapter of the study. An analysis of the response to each question is combined with a discussion that connects the literature review and the findings.

### 4.2 Response rate

A total of 80 questionnaires were distributed and 66 were returned, achieving a response rate of 82.5% as shown in Table 4.1. All returned questionnaires were usable and the high response rate increased the representativeness to the target sample. Wu, Zhao and Ails-Aime (2022:6) also suggests that a response rate above 75% is considered acceptable and provides a good representativeness of the sample.

**Table 4.1 The response rate**

<b>Positions</b>	<b>Targeted</b>	<b>Response Frequency</b>	<b>Percentage</b>
Directors	4	4	100.0
Management	15	12	80.0
Senior Accountants	5	4	80.0
Accounts Officers	30	24	80.0
Accounts Clerk	26	22	84.0
<b>Total</b>	<b>80</b>	<b>66</b>	<b>82.5</b>

### 4.3 Biographical Profile of Respondents

The study investigated the biographical profile of respondents according to gender, age, experience and educational qualification. These are essential because these are among the perceived factors that affects the reliability of information shared by the respondents.

**Table 4.2 Demographical data**

	Frequency	Percentage
<b>Gender</b>		
Male	29	44
Female	37	56
<b>Total</b>	<b>66</b>	<b>100</b>
<b>Age Bracket</b>		
25 and below	6	9
26 to 30 years old	7	11
31 to 40 years old	16	24
41 to 50 years old	24	36
51 and above	13	20
<b>Total</b>	<b>66</b>	<b>100</b>
<b>Working Experience</b>		
2 and below	6	9
3 to 5 years	9	14
6 to 10 years	8	12
11 to 15 years	10	15
Above 15 years	33	50
<b>Total</b>	<b>66</b>	<b>100</b>
<b>Educational qualification</b>		
Diploma	11	17
Graduate (Bachelors)	33	50
Graduate (Masters)	9	14
Other	14	21
<b>Total</b>	<b>66</b>	<b>100</b>

### **a. Gender**

Data presented in Table 4.2 show that female respondents yielded the highest frequency of 37 and a percentage of 56, in relation to the total number of responses received, while male respondents had a frequency of 29 and a percentage of 44. The results indicate that there are more female respondents who participated in the current study from DUT Finance Department. However, there is no information that suggested that there is knowledge difference on the effectiveness of internal control systems in monitoring financial resources at the Durban University of Technology.

### **b. Age**

The majority of the respondents were in age category of 41 to 50 years with a frequency of 24 and a percentage of 36, followed by respondents who are in the age category of 31 to 40 years with a frequency of 16 and a percentage of 24. According to Zhang (2023:157) age of employees may also influence employee behaviour in response to internal control requirements. This study demonstrated that age largely drive employee behaviour in reducing the quality of internal controls. These results suggest that the university has employees and management who are in their middle age, which suggests that they have more experience and understanding of internal controls.

### **c. Work Experience**

The results show that respondents with more than 15 years of experience have a higher frequency of 33 and a percentage of 50, followed by 11 to 15 years' categories that have the frequency of 10 and a percentage of 15. The results indicate that cumulatively, more than 77% of the respondents have work experience of more than 6 years. The experience is correlated to knowledge of business operations, internal controls, and difference trends at workplace. This experience increased the reliability of the results.

### **d. Educational qualifications**

The respondents who graduated with a bachelor's degree as their highest qualification yielded the highest frequency of 33 and a percentage of 50. Respondents with professional qualifications had a frequency of 14 or 21% and the least with a frequency of 9 or 14% are the employees who have masters' degrees. Different perceptions

arise from the knowledge derived from individual's educational background, which may shape the effectiveness of internal control systems in monitoring financial resources at the Durban University of Technology.

#### 4.4 Data analysis according to the research objectives

The dependability of the responses and items that were utilised as variables in this study was tested and checked using descriptive statistics. Using the statistical analysis programme SPSS, the mean, minimum and maximum values with standard deviation were examined from Likert-scaled questions. The study used a questionnaire survey to elicit information of the processes and systems of internal control that have been adopted by the University in monitoring financial resources. Guided by the reviewed literature, this study identifies the processes and systems of internal controls by using the following activities: control environment activities, risk assessment activities, control activities, information and communication activities and monitoring activities.

**Table 4.3 Descriptive statistics**

	<b>CE</b>	<b>RA</b>	<b>IS</b>	<b>CA</b>	<b>MC</b>	<b>MCo</b>	<b>OD</b>	<b>OV</b>	<b>Co</b>	<b>Mo</b>
<b>Mean</b>	3.52	3.23	4.15	3.86	3.73	3.3	3.2	3.5	3.1	3.4
<b>Standard Error</b>	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1
<b>Median</b>	3.0	4.0	4.0	4.0	3.5	3.0	3.0	4.0	3.0	3.0
<b>Mode</b>	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	3.0	4.0
<b>Standard Deviation</b>	1.1	1.0	1.0	0.9	1.0	1.1	1.2	1.1	1.1	0.9
<b>Sample Variance</b>	1.1	0.9	1.0	0.9	1.1	1.2	1.4	1.3	1.3	0.9
<b>Kurtosis</b>	-0.6	-0.9	-0.6	-0.4	-0.8	-0.9	-0.8	-1.1	-0.8	-0.9
<b>Skewness</b>	-0.3	-0.1	-0.3	-0.6	-0.2	-0.1	-0.1	-0.2	-0.1	0.0
<b>Range</b>	4.0	3.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	3.0
<b>Minimum</b>	1.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0	1.0	2.0
<b>Maximum</b>	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0

*Source: Own Research Compilation (Key for abbreviations see Section 3.8.2.4 of this report)*

Table 4.3 reveals that the mean scores for the variables range from 3.1 (Co) to 4.15 (IS), indicating a generally positive response towards the items measured. This suggests that on average, participants perceive the concepts represented by these

variables favourably (Mishra et al., 2019:70; Le Cessie, Goeman and Dekkers, 2020:1). The median values mirror the mean, with a notable concentration of scores around the value of 4.0 for severable variables (RA, IS, CA, MC, MCo, OD, OV). This consistency between mean and median indicates a balanced distribution of responses without extreme outliers. The mode values highlight that for most variables (particularly RA, IS, CA, MC, MCo and OV), the most frequently occurring score is 4.0. This reinforces the tendency towards positive perceptions among the respondents (Mishra et al., 2019: 70; le Cessie, Goeman and Dekkers, 2020: 1).

The standard deviation values range from 0.9 to 1.2, suggesting that there is a moderate level of variability in responses. A standard deviation close to 1 indicates that most responses fall within one unit of the mean, thus reflecting a relatively consistent view among participants. The variance values, ranging from 0.9 to 1.4, corroborate the findings of the standard deviation, further illustrating that while there is some variation, the responses are still closely clustered around the mean. The range of scores for each variable varies from 3.0 to 4.0, highlighting that the responses span the full spectrum from minimum to maximum values. The broad range indicates a diverse set of opinions within the sample (Mishra et al., 2019: 70; le Cessie, Goeman and Dekkers, 2020: 1).

The kurtosis values, which range from -1.1 to -0.4, suggest that the distributions of these variables are relatively flat compared to a normal distribution, indicating that there is a lower probability of extreme values. This implies that although the data is fairly normally dispersed, there is some degree of peakedness suggesting the presence of a few outliers (Mishra et al., 2019: 70; le Cessie, Goeman and Dekkers, 2020: 1).

The skewness values are mostly negative, particularly for CA (-0.6) and IS (-0.3), which indicates a slight leftward skew in the distribution of responses. This suggests that a larger number of respondents rated these items positively, though the skew is not severe enough to warrant concern regarding the normality of the data (Mishra et al., 2019: 70; le Cessie, Goeman and Dekkers, 2020: 1).

Overall, the descriptive statistics presented in Table 4.3 demonstrate a favorable perception among respondents regarding the constructs measured. The consistent

mean, median, and mode values, combined with the moderate standard deviation and variance, indicate that the sample responses are both reliable and indicative of a generally positive sentiment (Mishra et al., 2019: 70; le Cessie, Goeman and Dekkers, 2020: 1). The statistical measures of kurtosis and skewness further reinforce the understanding that while there is some variability, the overall distribution is relatively normal, supporting the validity of subsequent analyses conducted on this data (Mishra et al., 2019: 70; le Cessie, Goeman and Dekkers, 2020: 1).

#### **4.4.1 Objective 1: To determine the existing internal control mechanisms in place for monitoring financial resources at DUT**

In order to address this objective, Section B of the questionnaire. The data collected offers insights into the control environment, control activities, risk assessment, information and communication, and monitoring activities, all of which are integral components of effective internal control systems.

##### **4.4.1.1 Control environment**

The control environment at DUT was evaluated based on respondents' perceptions of role clarity, documented policies, organisational structure, and awareness of departmental policies.

##### **a. Clear separation of roles and responsibilities**

With respondents scoring a weighted mean of 3.47 as shown in Table 4.4, it suggests a leaning towards agreement or a moderately positive perception that the University has clear separation of roles and responsibilities. Ilyas et al. (2021:6040) maintain that clear segregation of duties is a good indicator of a strong control environment of the organisation.

##### **b. Policies, procedures, and guidelines**

Additionally, respondents were asked whether the University has well documented policies, procedures, and guidelines in place. The result indicates a weighted mean of 3.50 which suggests that participants perceive that the University has well-documented policies, procedures, and guidelines in place which indicate a good control environment employed by the University. Rija and Rubino (2018:24) states that in the control environment it is the responsibility of top management to clearly

state the policies and procedures of the organisation and how information flow within and outside the organisation.

**c. Organizational structure**

Moreover, respondents were asked if the University has a clear organizational structure with clearly stipulated reporting lines. The results presented in Table 4.4, show a weighted mean of 3.82 on this statement, indicating that respondents perceive the University to have clear organizational structure with clearly stipulated reporting lines. This suggest that the University has a good control environment. According to Ilyas et al. (2021:6039), the control environment influences an organization's individual awareness of controls and fosters a culture of control within it.

**d. Awareness of departmental polices and standard operating procedures**

Lastly, respondents were asked if staff are aware of their departmental polices and standard operating procedures. A mean score of 3.30 suggests a neutral position or ambivalence regarding staff awareness to their departmental policies and standard operating procedures. It indicates neither strong agreement nor disagreement with the statement.

**Table 4.4 The response on control environment**

	<b>Control environment</b>	<b>Weighted mean</b>	<b>Verbal Interpretation</b>
1.	The University has clear separation of roles and responsibilities.	3.47	Agree
2.	The University has well documented policies, procedures, and guidelines in place.	3.50	Agree
3.	The University has a clear organizational structure with clearly stipulated reporting lines.	3.82	Agree
4.	Staff are aware of the departmental polices and standard operating procedures.	3.30	Neutral
	<b>COMPOSITE MEAN</b>	<b>3.52</b>	<b>Agree</b>

This result does not correspond with related studies. For example, Vulley (2022:64); Muhunyo and Jagongo (2018:274) document that awareness of departmental polices

and standard operating procedures is key control activities in establishing internal control mechanisms.

Overall, the results in Table 4.4 show that the management has implemented a set of actions that influences how employees conduct their activities and meet their control responsibilities with a composite mean of 3.52. The results suggest that the University has established a control environment component within its internal control system as recommended by COSO (COSO, 2019).

#### **4.4.1.2 Control activities**

Control activities are a crucial part of an organization's internal control system because they guarantee policy and regulation compliance, protect assets, stop fraud, and enhance operational effectiveness. The following results were achieved concerning the control activities of the University.

##### **a. Policies and procedures**

Respondents were asked if policies and procedures can lead to producing reliable financial reports. The data presented in Table 4.5 show a weighted mean of 4.24, indicating that respondents strongly agree that policies and procedures can lead to producing reliable financial reports. According to Muhunyo (2018:1), ensuring the accuracy of financial reporting is the primary goal of internal controls and Sserunjogi (2018:1) add that internal controls make sure that bookkeeping and transactions are appropriate, legitimate, correctly recorded, timely, and complete.

##### **b. Segregation of duties**

Additionally, respondents perceive that accounting functions at the University are clearly segregated, as indicated by a mean score of 3.58. One of the most important internal control principles is the segregation of duties, which is essential for reducing risks and preventing fraud in an organisation. The results suggest that the University has effective control activities within its internal control systems. Segregation of duties, according to Francis and Imiete (2018:64), is essential to efficient internal control because it lowers the possibility of errors, inappropriate behaviour and it crucial in control activities of the organisation.

### **c. Authorisation of expenditures**

Respondents were also asked if the University expenditures are duly approved in advance by appropriately authorized persons. The results show a mean of 3.73, indicating that respondents agree that the university expenditures are duly approved in advance by appropriately authorized persons. The results suggest that the University has effective control activities within its internal control systems. Kujuna, (2020:34) added that, this control activity helps prevent unauthorized or fraudulent transactions from occurring, as unauthorized individuals are less likely to have the necessary approval authority.

### **d. Segregation in financial processing functions**

Finally, respondents scored a mean of 3.91 when asked if the authorization, processing, payments, recording and bank reconciliation functions were clearly segregated. The results suggest that respondents perceive that authorization, processing, payments, recording and bank reconciliation functions were clearly segregated. By lowering the possibility of cooperation and unauthorised action, segregating responsibilities aids in the detection and prevention of fraudulent activity. It is more difficult for one person to manipulate or override controls for personal gain when multiple persons are in charge of important stages of a process (Agyapong, 2017:53).

With a composite mean of 3.86 and a verbal interpretation of agree, the data in Table 4.5 demonstrate that respondents agree that the organisation has some control activities within its internal control systems. The respondents concurred that accounting duties are distinctly divided and that the University's expenses have been duly approved in advance by the relevant authorities. Furthermore, the respondents concurred that there was a clear division of authority, processing, payments, recording, and bank reconciliation functions within the organisation. Finally, respondents strongly agreed that the policies and procedures can result in the production of reliable financial reports.

**Table 4.5 The responses on control activities**

	<b>Control activities</b>	<b>Weighted mean</b>	<b>Verbal Interpretation</b>
•	Policies and procedures can lead to producing reliable financial reports.	4.24	Strongly agree
•	Accounting functions are clearly segregated.	3.58	Agree
•	University expenditures are duly approved in advance by appropriately authorized persons.	3.73	Agree
•	The authorization, processing, payments, recording and bank reconciliation functions clearly segregated.	3.91	Agree
	<b>COMPOSITE MEAN</b>	<b>3.86</b>	<b>Agree</b>

#### **4.4.1.3 Information and Communication**

Internal control systems in businesses depend heavily on information and communication activities. Internal control systems cover procedures and techniques for obtaining, evaluating, storing, and sharing relevant information as well as making sure that there is efficient communication throughout the company. The results are analysed in the following sections.

Respondents were asked three questions in respect of relevant information being communicated to stakeholders. A weighted mean of 4.56 with a verbal interpretation of strongly agreeing indicates that information at the organisation is communicated to all stakeholders, as shown by the results in Table 4.6. Also, with a weighted mean of 3.56 and a verbal interpretation of agree, respondents concurred that transactions are swiftly documented and categorised to render accurate information. With a weighted mean of 4.32, the results also showed that respondents strongly agreed that communication within the organisation aids in assessing how well the university's guidelines are operating. A composite mean of 4.15 shows that the university has procedures in place to communicate high-quality information in a timely manner, enabling staff members to work efficiently towards accomplishing goals, managing risks, and bolstering the internal control system. Wei-guo (2018:142) found that

Information and communication activities play a crucial role in supporting and facilitating the functioning of internal controls. Further, according to Vu (2016:145), information is required across the board for the organisation to meet its goals in the areas of operations, financial reporting, and compliance.

**Table 4.6 The responses on information and communication**

	<b>Information and Communication</b>	<b>Weighted mean</b>	<b>Verbal Interpretation</b>
<b>1.</b>	Information should be communicated to all stakeholders.	4.56	Strongly agree
<b>2.</b>	Transactions are promptly recorded and classified to provide reliable information.	3.56	Agree
<b>3.</b>	Communication helps to evaluate how well the guidelines of the University are working.	4.32	Strongly agree
	<b>COMPOSITE MEAN</b>	<b>4.15</b>	<b>Agree</b>

#### **4.4.1.4 Risk assessment activities**

Risk assessment activities include the methodical process of locating, assessing, and analysing possible risks and hazards to ascertain their extent and possible effects on a project, an individual, an organisation, or an activity. It entails evaluating the possible risks, comprehending their attributes, and coming to well-informed management or mitigation decisions. The following results were obtained from the risk assessment of the University.

##### **a. Strategy for risk identification**

Firstly, respondents were asked if management has designed an appropriate strategy for identifying risks. A weighted mean of 3.21, as per Table 4.7, suggests a neutral position regarding the presence of well-designed strategies for identifying risks at the University. The results indicate neither strong agreement nor disagreement with the statement. Aquino *et al.* (2022:123) pointed out that organisations are more susceptible to possible threats and hazards when they do not have a systematic approach to risk identification. They may be unprepared to react appropriately if they

are taken by surprise by unanticipated events or developments. This can cause disruptions to organisational operations.

#### **b. System for risk response**

Secondly, respondents scored a mean of 3.20 when asked if management has developed a system for appropriate responses to risks. The results show that the respondents neither agree nor disagree, indicating a neutral stance on whether management has developed a system for appropriate responses to risks. This suggests that the university has a weak risk assessment policy or there is poor communication with the specific aim of raising employee awareness of such policies if they are in place. The possibility of insufficient risk containment and control is higher in the absence of a systematic response system. Eke (2018:37) added that, in the absence of established response mechanisms, risks have the potential to intensify, disperse, or trigger a chain reaction throughout various divisions within the organisation. This may make it more difficult to manage risks and lessen their effects.

#### **c. Management's responsibility in risk processes**

Thirdly, respondents were asked if management is responsible for identifying, evaluating, and responding to risk. Table 4.7, shows that respondents scored a weighted mean of 3.48, indicating that the majority perceive that management at the University is responsible for identifying, evaluating, and responding to risk. Badoo *et al.* (2020:68) suggests that management plays a critical role in the entire risk management process. Their responsibilities include establishing risk management frameworks, creating a culture of risk awareness, and ensuring that appropriate risk management practices are followed throughout the organisation.

#### **d. Regular risk identification and analysis**

Fourthly, respondents were neutral when they were asked if risk identification and analysis is regularly carried out at the University as indicated by a mean score of 3.03. The results suggest that the University is not effectively carrying out risk identification and analysis process which can increase the organization's exposure to risks and leaves it more vulnerable to adverse events.

On the matter of risk assessment procedures of the organisation, Table 4.7, illustrates that the majority of respondents were not certain that the organisation has in place proper risk assessment procedures as suggested by a composite mean of 3.23. The response indicates that management has not designed an appropriate strategy for identifying risks or developed a system for appropriate responses to risks. More so, respondents were not sure whether risk identification and analysis are regularly carried out at the organisation. According to Sryreyshchikova *et al.* (2020:257), in order for universities to carry out their responsibilities in an efficient manner, they must implement a system for risk management because of issues such as unstable economies and scarce resources. The Quality Management System (QMS) must incorporate risk management requirements as mandated by the latest version of ISO 9001.

**Table 4.7 The response on risk assessment**

	<b>Risk assessment</b>	<b>Weighted mean</b>
<b>1.</b>	Management has designed an appropriate strategy for identifying risks.	3.21
<b>2.</b>	Management has developed a system for appropriate responses to risks.	3.20
<b>3.</b>	Management is responsible for identifying, evaluating, and responding to risk.	3.48
<b>4.</b>	Risk identification and analysis is regularly carried out.	3.03
	<b>COMPOSITE MEAN</b>	<b>3.23</b>

#### **4.4.1.5 Monitoring activities**

With regard to monitoring activities, the respondents firstly agreed that the University continuously monitors internal controls as part of its daily operations, yielding a verbal interpretation of agreement and a weighted mean of 3.45. Second, with a weighted mean of 3.35 and a verbal interpretation of agree, management keeps a close eye on how internal controls are being implemented. Third, respondents concurred that observational studies aid in assessing the efficacy of university controls with a mean

of 4.03. Fourth, a mean score of 4.09 shows that monitoring at the university includes assessing how well internal control works to accomplish desired objectives.

Overall, respondents agreed that the University has monitoring activities, as suggested by a composite mean of 3.73. Mamand and Alogoz, (2021:266) state that monitoring activities provide assurance that internal controls are functioning as intended and help identify and address control deficiencies or weaknesses in a timely manner. Since organisations and the people who work there are always changing, controls must be evaluated over time to see if they are still applicable and capable of handling new risks to the organisation.

**Table 4.8 The responses on monitoring activities**

	<b>Monitoring activities</b>	<b>Weighted mean</b>	<b>Verbal Interpretation</b>
<b>1.</b>	Monitoring of internal controls is built into the daily operating activities and is done on a continuous basis.	3.45	Agree
<b>2.</b>	Management closely monitors the implementation of internal controls.	3.35	Agree
<b>3.</b>	Monitoring helps to determine whether controls under the University are effective.	4.03	Agree
<b>4.</b>	Monitoring covers the evaluation of the effectiveness of internal control in achieving set objectives.	4.09	Agree
	<b>COMPOSITE MEAN</b>	<b>3.73</b>	<b>Agree</b>

#### **4.4.2 Objective 2: To examine the influence of internal control mechanisms on monitoring financial resources at the Durban University of Technology**

This section presents the results of the data analysis conducted to examine the influence of internal control mechanisms on monitoring of financial resources. The analysis utilized a multivariate regression model, allowing the researcher to assess the impact of various internal control components on the dependent variable, monitoring of financial resources. Details of the operationalization of these variables,

including measurement and estimation techniques, are presented in Chapter 2, Section 2.10.3.

**Table 4.9 Pearson’s parametric association multipliers**

	<i>CE</i>	<i>RA</i>	<i>IS</i>	<i>CA</i>	<i>MC</i>	<i>MCo</i>	<i>OD</i>	<i>OV</i>	<i>CO</i>	<i>MO</i>
<b>CE</b>	1									
<b>RA</b>	0.437	1								
<b>IS</b>	0.623	0.426	1							
<b>CA</b>	0.470	0.422	0.481	1						
<b>MC</b>	0.378	0.220	0.522	0.401	1					
<b>Mco</b>	0.333	0.247	0.486	0.425	0.687	1				
<b>OD</b>	0.380	0.297	0.349	0.548	0.154	0.251	1			
<b>OV</b>	0.408	0.167	0.274	0.536	0.367	0.411	0.596	1		
<b>CO</b>	0.432	0.252	0.453	0.350	0.414	0.340	0.333	0.378	1	
<b>MO</b>	0.373	0.392	0.427	0.605	0.682	0.517	0.392	0.494	0.417	1

The regression model's dependent and independent variables' association matrix is shown in Table 4.8.1. Ramly (2012:1733) claim that multicollinearity, a condition in which intercorrelations between independent variables are considerable (more than 0.8), may exist. The findings support the assertion that there are no significant complications resulting from non-normality among the variables in the model. Since the correlations between the variables are not very strong (below 0.8), there may not be a serious multicollinearity issue.

#### 4.4.2.1 Regression analysis overview

Regression analysis was employed to evaluate the impact of specific independent variable—internal control components and control variables—on the dependent variable, monitoring of financial resources. As explained in Chapter 3, regression analysis is a statistical method for exploring relationships between independent and dependent variables (Tranmer et al., 2020:6). This method was used to provide insights into how variations in internal control factors influence the effectiveness of financial resource monitoring.

The regression model used in this study examined the effect of five core internal control components (control environment, risk assessment process, information systems, control activities, and monitoring of controls) along with five control variables (management commitment, oversight by directors, organizational values,

communication, and monitoring). The results of the multivariate regression analysis are presented in Table 4.9.

#### **4.4.2.2 Multivariate Regression Results**

The regression output, displayed in Table 4.9, presents key indicators of the model's fit and statistical significance of each variable. The regression statistics, including Multiple R, R Square, and Adjusted R Square, indicate the model's predictive power. Multiple R (0.7726) represents the correlation coefficient between the observed and predicted values of the dependent variable. A value of 0.7726 indicates a relatively strong positive correlation between the predictor variables and the outcome variable (Tranmer et al., 2020:10). With an R Square of 0.5969, approximately 60% of the variability in the monitoring of financial resources is explained by the independent variables in the model. While this is moderate, it suggests that other unmeasured factors might account for the remaining variability. The adjusted R square (0.5073) further validates the model's robustness by adjusting for the number of predictors. This statistic is crucial for comparing models with differing numbers of independent variables, ensuring that the inclusion of additional predictors contributes meaningfully to the model.

The ANOVA results indicate that the model is statistically significant, with an F-value of 6.6621 and a Significance F of 3.07, indicating that the combined effect of all the variables is meaningful (Tranmer et al., 2020:26).

#### **4.4.2.3 Coefficient Analyses**

The results identify both significant predictors (Control Environment, Risk Assessment Process, and Monitoring) that explain a portion of the variance in the dependent variable, as well as non-significant predictors that, while included in the model, do not meaningfully contribute to explaining the variance.

#### **4.4.2.4 Significant Predictors**

##### **a. Control Environment**

The results show a positive and statistically significant relationship between the control environment and monitoring of financial resources at the 95% confidence level ( $p$ -value = 0.0066). With a coefficient of 0.3538, the control environment emerges as a crucial determinant in enhancing financial resource monitoring. This aligns with findings from previous studies (Adetula et al., 2020:4507; Akinleye and Kolawole, 2020) that support the notion that a robust control environment strengthens financial oversight capabilities within organizations. This implies that a robust control environment is likely to foster an atmosphere conducive to effective monitoring by reinforcing adherence to policies and procedures.

#### **b. Risk Assessment Process**

The risk assessment process also positively influences the monitoring of financial resources, with a statistically significant  $p$ -value of 0.0193 and a coefficient of 0.2936. This finding corroborates prior research by Badoo, Hammond, and Oppong (2020) and Otoo, Kaur, and Rather (2023:125), emphasizing the role of systematic risk evaluation in resource monitoring. Therefore, identifying and addressing potential risks strengthens the organisation's ability to prevent issues in financial monitoring.

#### **c. Monitoring of financial resources**

Monitoring of financial resources (0.4410,  $p$  = 0.0108) is another significant predictor, with a strong positive coefficient, suggesting that effective monitoring is associated with higher values in the dependent variable. This finding corresponds with previous studies (Badoo, Hammond and Oppong, 2020; Muhunyo, 2018; Okal, 2021; Otoo, Kaur and Rather, 2023:125) which documents that continuous evaluation is necessary to make sure the control systems are operating as intended and to guarantee their efficient operation. The results suggest that consistent, ongoing monitoring of controls and processes strengthens the ability to manage and safeguard financial resources effectively.

### **4.4.2.5 Non-significant predictors**

#### **a. Information Systems**

Although information systems and control activities positively correlate with monitoring financial resources, these relationships are not statistically significant (p-values of 0.3888 and 0.2841, respectively). These results deviate from previous studies, such as those by Muhunyo (2018) and Okal (2021), which found a statistically significant positive effect of these variables on financial monitoring. While not statistically significant, information systems are still a critical component of internal controls (Akinleye and Kolawole (2020:407). Information systems provide data access and streamline processes, potentially indirectly supporting financial monitoring, but they may not directly influence outcomes without effective implementation (Vulley, 2022).

#### **b. Control activities**

Control activities (0.1605,  $p = 0.2841$ ) is another non-significant predictor, that did not show significance, though they are essential for operation efficiency. It has been noted that in order to guarantee that all activities and procedures are recorded, the control activities must penetrate all organisational levels, from the highest to the lowest (COSO, 2019).

#### **c. Monitoring of Controls**

Although part of internal controls, monitoring of controls (-0.2170,  $p = 0.1857$ ) is not statistically significant. However, it remains theoretically important as a feedback mechanism. Monitoring of controls helps detect and address deficiencies, potentially contributing more indirectly to financial monitoring effectiveness.

### **4.4.2.5 Control Variables (Non-Significant)**

This study's conceptual framework assumed that the control variables have an influence the relationship between internal controls and financial monitoring. The results indicate that none of the control variables achieved statistical significance, which may imply they do not exert a strong direct effect but still play a background role.

#### **a. Management Commitment**

Management commitment (0.0678,  $p = 0.5949$ ), while crucial for implementing and maintaining controls, did not directly impact financial monitoring. The commitment of management can reinforce control measures indirectly, setting the tone and priority for compliance but not necessarily influencing monitoring directly (Vulley, 2022).

**Table 4.10 Multivariate regression analysis**

<i>Regression Statistics</i>	
Multiple R	0.7726
R Square	0.5969
Adjusted R Square	0.5073
Standard Error	0.6988
Observations	66

<i>ANOVA</i>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	10	32.5284	3.2528	6.6621	3.07
Residual	45	21.9716	0.4883		
Total	55	54.5			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	0.8687	0.4801	1.8093	0.0771	-0.0983	1.8357
control environment	0.3538	0.1243	2.8469	0.0066	0.1035	0.6041
risk assessment process	0.2936	0.1210	2.4259	0.0193	0.0498	0.5374
information systems	0.1265	0.1453	0.8702	0.3888	-0.1662	0.4192
control activities	0.1605	0.1481	1.0840	0.2841	-0.1377	0.4587
monitoring of controls	-0.2170	0.1615	-1.3438	0.1857	-0.5422	0.1082
management commitment	0.0678	0.1266	0.5355	0.5949	-0.1872	0.3228
oversight by directors	-0.0951	0.1112	-0.8550	0.3971	-0.3191	0.1289
organisational values	-0.1812	0.1202	-1.5072	0.1388	-0.4234	0.0609
communication	-0.1249	0.1007	-1.2397	0.2215	-0.3277	0.0780
monitoring	0.4410	0.1658	2.6595	0.0108	0.1070	0.7749

*Source: Own Research Compilation*

### **b. Oversight by Directors**

Oversight by directors (-0.0951,  $p = 0.3971$ ) was also found to be non-significant, though theoretically important for governance. Director oversight can ensure

accountability and establish strategic priorities, potentially supporting effective monitoring over time (Muhunyo and Jagongo, 2018; Vulley, 2022).

### **c. Organizational Values**

Organizational values (-0.1812,  $p = 0.1388$ ) did not show a statistically significant impact. While values create a culture that supports compliance, they may not directly impact financial monitoring processes (Eton et al., 2022; Vulley, 2022).

### **d. Communication**

Effective communication (-0.1249,  $p = 0.2215$ ) did not show a direct influence on monitoring of financial resources. Clear communication likely supports the implementation of controls, ensuring employees understand and adhere to procedures, indirectly aiding monitoring effectiveness (Eton et al., 2022; Vulley, 2022).

## **4.4.3 Objective 3: To examine the factors affecting the performance of internal control systems in monitoring financial resources at DUT.**

Section C of the questionnaire was used to identify factors influencing the performance of internal controls at the study's research site. This study found critical factors driving internal control systems performance within the tertiary institution such as DUT. This includes human resources policies (HR), internal audit function (IA), organisation support structure (OS), audit committee (AC), management commitment (MC), organisation values (OV), monitoring (Mo) and communication (Co). These are discussed below as follows:

### **4.4.3.1 Communication**

Table 4.10 shows that the mean score of 3.14, suggesting that employees were somewhat uncertain whether communication is being employed to enhance performance of the implemented internal controls. Effective communication is critical for ensuring that all stakeholders understand and adhere to internal control policies (Vulley, 2022). It facilitates clarity in responsibilities and expectations (Vulley, 2022).

### **4.4.3.2 Monitoring**

Table 4.10 shows that the mean score of 3.41, suggesting that employees were somewhat uncertain whether monitoring is being employed effectively for the performance of implemented internal controls. Ongoing monitoring of internal controls helps identify weaknesses or lapses in compliance (Vulley, 2022). Regular reviews ensure that controls remain effective and relevant.

#### **4.4.3.3 Management support and commitment**

In Table 4.10 the results depict the mean score of 3.25, suggesting that employees were somewhat uncertain whether management support is being employed for the effective performance of the implemented internal controls. Management's support is essential for fostering a culture of compliance (Anyim, 2020). When leadership demonstrates commitment, it encourages staff to prioritize internal control measures (Anyim, 2020).

#### **4.4.3.4 Organisational structure and values**

The organisational structure and underlying values shape how internal controls are perceived and implemented (Anyim, 2020). A supportive structure promotes accountability and integrity (Anyim, 2020). Table 4.10 shows that the mean scores of 3.32, suggesting that employees were somewhat uncertain whether organisation structure is being employed for the effective performance of the implemented internal controls.

#### **4.4.3.5 Internal audit**

An effective internal audit function assesses the adequacy of internal controls and provides recommendations for improvements (Anyim, 2020). It serves as a key mechanism for oversight and accountability (Vulley, 2022). Table 4.10 shows a mean score of 3.96, suggesting that employees somewhat agreed that the internal audit function is being employed to effectively assess the performance of the implemented internal controls and risk management processes.

**Table 4.11 Descriptive statistics of the factors affecting Internal Control implementation**

	HR	IA	OS	AC	MC	OV	Mo	Co
Mean	3.14	3.96	3.32	3.73	3.25	3.50	3.41	3.14
Median	3	4	3	4	3	4	3	3
Mode	3	4	4	4	4	4	4	3
Standard Deviation	1.135	0.914	0.956	1.053	1.083	1.144	0.949	1.135
Sample Variance	1.288	0.835	0.913	1.109	1.173	1.309	0.901	1.288
Kurtosis	-0.753	1.135	-0.570	0.070	-0.858	-1.130	-0.894	-0.753
Skewness	-0.058	-0.966	-0.179	-0.693	-0.078	-0.189	0.001	-0.058
Range	4	4	4	4	4	4	3	4
Minimum	1	1	1	1	1	1	2	1
Maximum	5	5	5	5	5	5	5	5
Count	56	56	56	56	56	56	56	56

This study found critical factors driving ICS implementation within the tertiary institution such as DUT. This includes human resources policies (HR), internal audit function (IA), organisation support structure (OS), audit committee (AC), management commitment (MC), organisation values (OV), monitoring (Mo) and communication (Co). Table 4.10 shows that the mean scores for most variables hover around 3.14 to 3.96, suggesting a generally moderate to above-average perception or rating, with IA having the highest mean score at 3.96 and HR the lowest at 3.14. This implies that these factors are critical in implementing ICS as documented by Vulley (2022). The median values for all variables are mostly around 3 or 4, indicating that half of the ratings fall below or above these points. This reinforces the notion that many ratings are clustered around these mid-range values. Most variables have a mode of 4, which suggests that a significant proportion of respondents rated these variables positively, with HR and Co having a mode of 3, indicating a relatively lower positive perception. The standard deviations for each variable range from 0.914 to 1.144. Variables like IA and OV have the lowest variability (0.914 and 1.144 respectively), indicating consistency in responses, while others like HR and Co have higher variability (1.135 each), suggesting greater diversity in ratings. The skewness indicates that most distributions are either mildly left-skewed (IA and AC) or near symmetric (Mo) with slight deviations. Only IA has a notable left-skew (-0.966), suggesting that more respondents rated IA lower rather than higher.

The control variables comprised of management commitment, oversight by directors, organisational values, communication and monitoring. Table 4.4 above shows that monitoring of internal controls has a positive and significant influence on the monitoring of financial resources. The association between management commitment and monitoring of financial resources is also positive though insignificant. These findings are in line with previous studies (e.g. Badoo, Hammond and Oppong, 2020; Muhunyo, 2018; Okol, 2021; Otoo, Kaur and Rather, 2023:141).

#### **4.4.4 Summary of findings on objectives**

The results have shown that the University has adopted key components of internal controls including the control environment, risk assessment, information and communication activities, control activities and monitoring activities as recommended by COSO. Respondents perceive that the University has a good control environment indicated by a composite mean of 3.52. The control activities are well functioning as shown by a composite mean of 3.86. Moreover, respondents perceive that the University information and communication activities are effectively supporting internal controls as shown by a composite mean of 4.15 and the monitoring activities are also providing assurance that internal controls are functioning as intended and help identify and address control deficiencies or weaknesses in a timely manner. However, on the risk assessment activities, the results have shown that the organisation is yet to implement effective risk assessment policies and procedures to identify, evaluate and eliminate risks from operation as shown by a composite mean of 3.23. The results also show that internal control mechanisms have significant and positive impact on the monitoring of financial resources.

#### **4.4. Chapter Summary**

The information gathered via the questionnaires was presented, analysed and discussed in this chapter. An analysis and discussion of the results have shown that the University has, to its credit, adopted key components of internal controls including the control environment, risk assessment, information and communication activities, control activities and monitoring activities as recommended by COSO. However, some improvements is required on risk assessment policies and internal control procedures. In addition, the results revealed that communication in the organisation, the presence of monitoring activities, organisational values, management support,

oversight provided by the audit committee, organisational structure, internal audit of the organisation and human resources policies are some of the key factors affecting the implementation of internal control systems in monitoring financial resources at DUT. On the challenges facing the implementation of internal controls, the chapter revealed that internal controls are costly to implement and this implementation is always faced with some resistance to change. Moreover, some controls are considered unreasonable at the organisation level and in some areas, internal controls are inadequate to cover all operations. A discussion of the primary findings and conclusions drawn from the current chapter are summarised in the following chapter, along with suggestions for relevant stakeholders.

# **CHAPTER FIVE**

## **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Introduction**

The purpose of this chapter is to summarise findings from the research and to derive key implications and conclusions from these findings which were presented in more detail in the previous chapter. On the basis of the study's objectives which are outlined in chapter one and a theoretical framework that was derived from the literature review, certain conclusions will be explored. The discussion of the results will be followed by recommendations, the main goal of which is to improve various areas as alluded to in the previous chapter.

### **5.2 Summary of results and conclusions on research objectives**

This section provides a summary of results in accordance with the research objectives. The purpose of this part is to demonstrate how the objectives were achieved.

#### **5.2.1 Objective 1: To assess the existing internal control mechanisms in place for monitoring financial resources at DUT**

This section's main goal was to assess Durban University of Technology's (DUT) current internal control systems for keeping an eye on financial resources. In line with the elements suggested by COSO for efficient internal control systems, the data gathered offers insights into the control environment, control activities, risk assessment, information and communication and monitoring activities (COSO, 2019).

- **Control Environment**

Perceptions of role clarity, documented policies, organisational structure and departmental policy awareness were used to evaluate DUT's control environment. With a distinct organisational structure, well documented policies and a clear division of roles, DUT appears to have established a reasonably strong control environment. These findings are consistent with research showing that a strong internal control system depends on a control environment (Ilyas et al., 2021:6040; Vulley, 2022). Regarding awareness of departmental policies, however a more neutral perception

was noted, suggesting a potential area for training and communication improvements at the university.

- **Control Activities**

Questions about accurate financial reporting, job segregation, expenditure approvals and the division of important financial functions were used to assess control activities, which are crucial for maintaining compliance, safeguarding assets and preventing fraud. Respondents generally agreed that DUT has effective control activities. The strength of these activities is further supported by the high degree of agreement that policies and procedures facilitate trustworthy financial reporting. Positive perceptions of the university's efforts to uphold strong control procedures are also reflected in the segregation of duties and expenditure approval procedures. According to several studies, this control activity aids in preventing fraudulent or unauthorised transactions (Imiete, 2018:64; Kujuna, 2020:34; Muhunyo, 2018:1).

- **Information and Communication**

Information and communication activities which are essential for efficient internal controls were highly valued. The university appears to have efficient channels of communication as indicated by the respondents' strong agreement that pertinent information is shared with stakeholders. Furthermore, communication in an organisation facilitates the assessment of guidelines efficacy which enhances operational efficiency and helps achieve goals (Wei-guo, 2018:142; Vu, 2016:145).

- **Risk Assessment**

With a composite mean which indicates neutral opinions on a number of aspects of risk identification and response tactics, the risk assessment activities at DUT were viewed as moderate. There is neutrality regarding whether the university has well-designed strategies for risk identification and regular risk assessments despite respondents agreeing that management is in charge of identifying and responding to risk. According to various studies, DUT may need to enhance or clarify risk management procedures in order to raise awareness and lesson exposure to unanticipated risks (Aquino et al., 2022:123; Badoo et al., 2020:68; Eke, 2018:37).

- **Monitoring Activities**

Monitoring of operations were viewed favourably. Respondents concurred that DUT closely watches the application of controls and keeps an eye on internal controls as part of everyday operations. According to Mamand and Alogoz (2021:266), monitoring operations at DUT appear to offer a reasonable assurance of control effectiveness and aid in identifying potential inadequacies, as indicated by higher agreement scores for evaluating control effectiveness.

- **Conclusion on research objective 1**

The majority of the control components of DUT's internal control system are strong overall, but the information and communication, control activities and control environment are very strong. Nonetheless additional improvement of risk assessment processes would be beneficial to guarantee proactive management and risk awareness. DUT can further fortify its internal control systems to facilitate efficient financial resource monitoring by strengthening risk assessment efforts and raising departmental policy awareness. This connection with the elements of COSO helps DUT achieve its goal of maintaining strong internal controls to protect resources, encourage adherence and boost operational effectiveness.

### **5.2.2 Objective 2: The influence of internal control mechanisms on monitoring financial resources at DUT**

A multivariate regression model was used in the study to assess the effects of several internal control elements on financial resource monitoring. With an emphasis on the control environment and other pertinent elements including risk assessment, information systems, and control activities, this purpose sought to identify the internal control mechanisms that have a major influence on financial supervision. The predictive power and overall fit of the model were interpreted by looking at key statistical measures such as Multiple R, R Square, and Adjusted R Square.

- **Summary of Regression Analysis**

There is a substantial positive correlation between financial monitoring and internal control measures, as indicated by the regression model's Multiple R. According to the

model's R Square, the independent variables account for around 60% of the variability in financial resource monitoring, with unmeasured factors probably accounting for the remaining variance. The combined impact of these variables on financial resource monitoring is significant, as shown by the model's statistical significance. This result is in line with earlier research that indicates internal controls are crucial for maintaining operational effectiveness and truthful reporting (Sserunjogi, 2018; Francis & Imiete, 2018:89).

- **Significant Predictors**

The study found three significant predictors: control environment, risk assessment, and monitoring of financial resources.

- **Control Environment**

Financial monitoring is directly improved by a statistically significant and positive predictor. By encouraging conformity to policies and procedures, this reinforces the idea that a strong control environment is necessary for efficient financial oversight. This result is consistent with that of Vulley (2022), who highlights the control environment as a fundamental component in creating an ethical and disciplined corporate culture. The findings are consistent with research by Adetula et al. (2020:4507) and Ilyas et al. (2021), which claim that a strong control environment enhances oversight capacities and promotes financial policy compliance.

- **Risk Assessment Process**

Similarly, the risk assessment process positively influences financial monitoring, reinforcing literature that highlights systematic risk evaluation as essential to internal control efficacy (Mamand & Alogaz, 2021). This finding aligns with studies such as those by Badoo et al. (2020) and Akinleye and Kolawole (2020), suggesting that proactive risk management enhances an organization's ability to safeguard resources.

- **Monitoring of Financial Resources**

Effective oversight procedures and financial monitoring have a strong positive correlation, which highlights the need of ongoing monitoring in bolstering financial

controls. The conclusions of this study on the significance of thorough internal audits and reviews are supported by supporting research by Agyapong (2017) and Muhunyo (2018), which emphasises the relevance of consistent monitoring techniques in identifying anomalies and upholding accountability.

- **Non-Significant Predictors**

Although financial monitoring and information systems and control activities had a positive correlation, their lack of statistical significance indicates that, although these components assist overall control structures, they might not have a direct impact on monitoring efficacy on their own. Furthermore, control monitoring was shown to be non-significant, despite the fact that it is still theoretically crucial for providing feedback and fixing flaws.

The control variables (management commitment, oversight by directors, organizational values, and communication) did not significantly impact financial monitoring. This may suggest that while these variables support the control environment and set a foundation for effective governance, they do not directly influence the monitoring of financial resources.

Although theoretically significant, the investigation revealed that control actions and information systems fell short of statistical significance. This divergence from research like Muhunyo (2018) and Okal (2021) may suggest that although these factors promote operational effectiveness, they might not have a direct effect on financial monitoring in the absence of additional requirements, including appropriate implementation. In line with research that suggests these factors play indirect roles by creating a supportive atmosphere rather than directly influencing financial outcomes, control variables such as management commitment and oversight also did not demonstrate a direct impact (Ali, 2018).

- **Conclusion on objective 2**

The findings show that monitoring, risk assessment, and the control environment are important internal control elements that greatly improve DUT's financial resource monitoring. These results support earlier research on the functions of internal controls

in higher education. The findings show that monitoring, risk assessment, and the control environment are important internal control elements that greatly improve DUT's financial resource monitoring. These results support earlier research on the functions of internal controls in higher education and other fields, which contend that proactive risk assessment and a structured control environment are essential for protecting organisational resources (Korir, 2022:8; Tjiueza, 2018). The results also highlight the significance of management's role in creating an atmosphere that maintains control standards, as mentioned by Eton et al. (2022) and Wei-guo (2018:143).

### **5.2.3 Objective 3: To examine the factors affecting the performance of internal control systems in monitoring financial resources at DUT.**

The findings highlight a general uncertainty among employees regarding the effectiveness of various factors influencing the performance of implemented internal controls. Effective communication is essential for ensuring adherence to internal control policies, yet the uncertainty suggests a need for improvement in conveying roles and expectations. Similarly, while monitoring is crucial for identifying weaknesses in compliance, the moderate score indicated that its implementation may not be perceived as robust. The organisation structure and values also reflect a similar uncertainty about their effectiveness in supporting internal controls. In contrast, the internal audit function received a more favourable mean score, suggesting that employees recognize its role in assessing and improving internal controls and risk management processes. Overall, these findings point to critical areas for enhancement in communication, management commitment and organisation structure to bolster the effectiveness of internal controls within the organisation.

- **Conclusion on objective 3**

The study's conclusion highlights the importance of human resources policies, internal audit functions, organisational support, audit committees, management commitment, organisational values, monitoring, and communication in influencing the implementation of Internal Control Systems (ICS) at DUT. The average scores show that these elements are generally seen favourably, with IA getting the highest grade. Furthermore, whereas financial resource management benefits from monitoring,

management commitment has a favourable but non-statistically significant impact. All things considered, these results highlight how crucial these elements are to the effective implementation of ICS in tertiary institutions.

## **5.2 Recommendations**

The following recommendations from this study offer practical measures to improve critical aspects of the internal control system affecting financial resource oversight.

### **5.2.4 Risk assessment procedures**

The results have revealed that, on risk assessment procedures of the organisation, the respondents were not certain that the organisation has proper risk assessment procedures and this proved that management has not designed an appropriate strategy for identifying risks or developed a system for appropriate responses to risks. The study recommends that the management should develop effective risk assessment policies and procedures and train employees on these procedures so that they are understood, appreciated and applied.

### **5.2.5 Inherent limitations of internal controls**

The results have revealed some inherent limitations or challenges of internal controls, human error, uncertainties inherent in judgement, management override, and their circumvention due to collusion. Management should utilise relevant technology and should also offer training to reduce human error. Management itself should be subjected to corporate governance training, proper compensation, and less pressure of meeting targets so that the motivation to override controls is significantly reduced. Moreover, accounts personnel should be rotated to reduce familiarity and possible collusion which are threats to successful implementation.

### **5.2.6 Important factors**

The study has revealed that communication in the organisation, the presence of monitoring activities, organisational values, management support, oversight provided by the audit committee, organisational structure, internal audit of the organisation and human resources policies are some of the key factors positively affecting the

implementation of internal control systems in monitoring financial resources at DUT. The management should ensure that all these key areas identified are functioning well, which would significantly improve the effectiveness of internal controls employed by the organisation.

### **5.2.7 Training of employees**

Training is always required on periodical basis. This training of the University's leadership and employees on the application of corporate governance principles in social and economic environment, new technology and changes within the organisation will improve the effectiveness of internal controls.

## **5.3 Implications of the study**

The study's findings provide practical, policy, and theoretical insights with broader implications for the higher education sector.

### **5.3.1 Practical implications**

The study highlighted the importance of effective internal control systems in monitoring financial resources within higher education institutions. By implementing robust control mechanisms such as segregation of duties, regular financial reporting and independent audits, institutions can ensure transparency, accuracy and reliability in financial resource management. The findings emphasize the role of internal control systems in identifying and mitigating risks associated with financial resource management. Higher education institutions can utilize the study's recommendations to strengthen their control activities such as establishing clear policies and procedures, conducting periodic risk assessments and implementation control monitoring mechanisms. This can help prevent fraud, errors and misappropriation of funds, thereby safeguarding the University's financial resources. The study has also highlighted the specific challenges faced by higher education institutions in implementing and maintaining effective internal control systems. By identifying these challenges, institutions can gain insights into the areas that require improvement and develop strategies to address systemic weaknesses in their control mechanisms.

### **5.3.2 Policies and procedures**

The implications also suggest that higher education institutions need to periodically review and revise existing policies and procedures related to internal control systems, especially on risk assessment component. By addressing the identified challenges, institutions can strengthen control activities and ensure that policies and procedures align with best practices and regulatory requirements. This can lead to more effective monitoring of financial resources and better overall governance practices.

### **5.3.3 Theoretical implications**

This study also contributes to theoretical insights in several key areas of internal control and institutional theories.

#### **5.3.3.1 Internal control theory**

The findings of the study can contribute to the theoretical understanding of internal control systems by identifying specific challenges faced by higher education institutions. This can help refine and expand existing internal control theories by highlighting the unique contexts and complexities associated with financial resource management in the higher education sector.

#### **5.3.3.2 Institutional theory**

The study's implications can provide insights into how institutional factors such as audit committee, internal audit, leadership and organizational culture influence the implementation and effectiveness of internal control systems. By examining the challenges faced by higher education institutions, the study can contribute to the theoretical understanding of institutional theory and its application to the context of financial resource management.

#### **5.3.3.3 Control system design and implementation**

The study's implications can contribute to the theoretical understanding of control system design and implementation in the context of financial resource management in higher education institutions. By identifying challenges, the study can inform the development of theoretical frameworks and models that guide the design and

implementation of effective control systems to address the specific complexities of the higher education sector.

## **5.4 Limitations of the Study**

Although the research was insightful, it was subject to certain limitations.

### **5.4.1 Generalisation of findings**

The findings of this study are based on a case study of one unique institute of higher education, DUT, in South Africa. Therefore, it may not be practicable to generalise these findings in respect of other institutions in the country or outside. The researcher ensured that the study included respondents with knowledge and experience about accounting systems at the university.

### **5.4.2 Time constraints**

As time for the research was constrained, the researcher had to utilise suitable research methods and reduce the sample size to meet the deadline. Perhaps the target population would have been expanded to include more organisations and respondents.

## **5.5 Directions for future research**

As the current study concentrated on the effectiveness of internal control systems in monitoring financial resources at the Durban University of Technology, future studies can include other universities in South Africa as a population of the study than using a case of a single university to obtain results that can be generalised. Further, another study can be conducted to find the best possible ways of dealing with the inherent limitations of internal controls such as human errors, possible collusion, system breakdown, management override, inadequacy and cost of implementation.

## **5.6 Chapter Summary**

This chapter has provided the summaries of the findings from the survey, conclusions reached from findings and recommendations that were based on the conclusions, as it achieves the research objectives. The analysis revealed a positive association

between the implementation of effective internal controls and effective control of financial resources. Having robust internal control systems in place exhibited higher levels of financial integrity, accuracy of financial reporting and protection against fraud and errors. The study highlighted the critical role of leadership in driving the effectiveness of internal controls. Despite the advantages of internal controls, it is to be noted that internal controls are costly to implement and this implementation is always faced with some resistance to change. Based on the findings, several recommendations can be made to enhance the effectiveness of internal controls within organisations. These include strengthening leadership commitment, prompting a robust control culture, conducting regular risk assessments, implementing appropriate control activities and providing continuous training and communication on control-related matters.

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# APPENDICES

## Appendix A- PERMISSION TO CONDUCT RESEARCH



*Directorate for Research and Postgraduate Support  
Durban University of Technology  
Open House  
P.O. Box 1334, Durban 4000  
Tel.: 031-3732576/7  
Fax: 031-3732946*

20 April 2023

Mrs Farisha Pillay  
c/o Department of Auditing and Taxation  
Faculty of Accounting and Information  
Durban University of Technology

Dear Mrs Pillay


### **PERMISSION TO CONDUCT RESEARCH AT THE DUT**

Your email correspondence in respect of the above refers. I am pleased to inform you that the Institutional Research and Innovation Committee (IRIC) has granted **Gatekeeper Permission** for you to conduct your research “The effectiveness of internal control systems used in monitoring financial resources at a Higher Education Institution” at the Durban University of Technology. **Kindly note that this letter must be issued to the IREC for approval before you commence data collection.**

The DUT may impose any other condition it deems appropriate in the circumstances having regard to nature and extent of access to and use of information requested.

Upon completion of your research project, you are requested to share the summary of your key research findings.

Kind regards.

  
ACTING-DIRECTOR: RESEARCH AND POSTGRADUATE SUPPORT DIRECTORATE

## Appendix B- LETTER OF CONSENT



### LETTER OF INFORMATION

**Title of the Research Study :** The effectiveness of internal control systems used in monitoring financial resources at a Higher Education Institution.

**Principal Investigator/s/researcher:** Farisha Pillay, Master of Accounting: Internal Auditing

**Co-Investigator/s/supervisor/s:** Dr C J Nyide (PhD)

**Brief Introduction and Purpose of the Study:** The importance of internal controls in a University environment has been acknowledged as a process for assuring the accomplishment of set objectives in reliable financial reporting, operational efficiency and compliance with regulatory and international accounting standards. The main difficulty public institutions such as Universities of Technology experience is limited financial resources. Therefore, it is imperative to implement effective internal controls for monitoring and the management of the business processes towards financial sustainability. This study envisages to assess internal control systems at the Durban University of Technology, investigating the existence and implementation effectiveness and related challenges of such internal controls. The objectives are to establish the processes and systems of internal control at Durban University of Technology (DUT), to assess the extent to which internal control systems and processes are being used at DUT and to determine the effectiveness of the implementation of the internal control procedures at DUT.

**Greeting:** Good Day, I trust you are well.

**Introduce yourself to the participant:** I am a 2<sup>nd</sup> year student at DUT doing research for my Masters degree in Internal Auditing.

**Invitation to the potential participant:** I would like to kindly ask for your contribution towards my research study entitled, the effectiveness of internal control systems used in monitoring financial resources at a Higher Education Institution.

**Outline of the Procedures:** A questionnaire has been selected as the research instrument for this study. The questionnaire will be distributed electronically by the researcher via the use of Microsoft Forms. This method has been selected as to comply with COVID-19 regulations as well allowing of as ease of accessibility of the research population being spread across the Durban and Pietermaritzburg campuses. This study will be limited to personnel within the Finance department and other Finance Officers from other sectors of the University. The participants are only required to respond to the questionnaire and will be supplemented by the consent form and cover letter.

**Risks or Discomforts to the Participant:** This study does not pose any risk of discomfort nor any significant risk to the participants. There would be no medicinal testing nor will the study require use of injurious equipment by the participants.

9 June 2022

**Explain to the participant the reasons he/she may be withdraw from the Study:**

Participation in this study is completely voluntary and participants withdraw at any time should the need arises.

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

**Remuneration:** There will be no remuneration offered to the participants of this study.

**Costs of the Study:** It is anticipated that the study would not require any costs to implement.

**Confidentiality:** The data obtained from this study would be kept with the researcher and publication of findings of the research will not reveal the personal details of the participants.

**Results:** Any significant new findings developed during the course of this study will be disclosed to all participants via presentations at local conferences, seminars and workshops on finance management

**Research-related Injury:** Through the processes of distribution of the research instrument there will not be any harmful process that could lead to injury of the participants.

**Storage of all electronic and hard copies including tape recordings:** Electronic copies of the questionnaire will be kept by the researcher and disposed of at the end of the study.

**Persons to contact in the Event of Any Problems or Queries:** Please contact Farisha Pillay on 0837961103, my supervisor, Dr CJ Nyide on 033 845 8804 or the Institutional Research Ethics Administrator on 031 373 2375. Complaints can be reported to the Acting Director: Research and Postgraduate Support, Vanesh@dut.ac.za

## Appendix C- ETHICS APPROVAL



Faculty Research Office  
Durban University of Technology  
Date: 11 April 2023

Student: Mrs Farisha Pillay  
Student Number: 19653216  
Degree: MASTER OF ACCOUNTING: INTERNAL AUDITING  
Email: 19653216@dut4life.ac.za  
Supervisor: Dr C.J Nyide  
Supervisor email: nyidec@dut.ac.za

**Dear Mrs Pillay**

ETHICAL APPROVAL: LEVEL 2

I am pleased to inform you that the Faculty Research Ethics Committee (FREC) following feedback from two reviewers, has granted preliminary permission for you to conduct your research 'The effectiveness of internal control systems used in monitoring financial resources at a Higher Education Institution'.

**When ethics approval is granted:**

You are required to present the letter at your research site(s) for permission to gather data. Please also note that your research instruments must be accompanied by the letter of information and the letter of consent for each participant, as per your research proposal.

This ethics clearance is valid from the date of provisional approval on this letter for one year. A student must apply for recertification 3 months before the date of this expiry.

Recertification is required every year until after corrections are made, after examination, and the thesis is submitted to the Faculty Registrar.

A summary of your key research findings must be submitted to the FRC on completion of your studies.

Kindest regards.

Yours sincerely

Dr Mogiveny Rajkoomar  
FRC Chair  
Faculty of Accounting and Informatics  
Durban University of Technology  
Ritson Campus  
Durban, South Africa  
4001

## Appendix D - QUESTIONNAIRE

### SECTION A: BACKGROUND INFORMATION

1. Gender:	Male <input type="checkbox"/>	2. Age:	Below 25 years <input type="checkbox"/>
	Female <input type="checkbox"/>		26 to 30 years <input type="checkbox"/>
			31 to 40 years <input type="checkbox"/>
			41 to 50 years <input type="checkbox"/>
			Above 50 years <input type="checkbox"/>
3. Experience:	Below 2 years <input type="checkbox"/>	4. Qualifications:	Diploma <input type="checkbox"/>
	3 to 5 years <input type="checkbox"/>		Bachelors <input type="checkbox"/>
	6 to 10 years <input type="checkbox"/>		Masters <input type="checkbox"/>
	11 to 15 years <input type="checkbox"/>		PhD <input type="checkbox"/>
	Above 15 years <input type="checkbox"/>		Other: Specify
			.....
5. Position	Clerk <input type="checkbox"/>		
	Officer <input type="checkbox"/>		
	Manager <input type="checkbox"/>		
	Senior <input type="checkbox"/>		
	Director <input type="checkbox"/>		

### SECTION B: THE PROCESSES AND SYSTEMS OF INTERNAL CONTROL AT YOUR ORGANISATION

Kindly state your level of agreement or disagreement with the following statements by putting a tick against that which best describes your position. The scale ranges from Strongly Agree (5), Agree (4), Uncertain (3), Disagree (2) and Strongly Disagree (1).

	STATEMENT	5	4	3	2	1
<b><u>CONTROL ENVIRONMENT</u></b>						
6.	The University has clear separation of roles and responsibilities.					
7.	The University has well documented policies, procedures and guidelines in place.					
8.	The University has a clear organisational structure with clearly stipulated reporting lines.					
9.	Staff are aware of the departmental polices and standard operating procedures.					

10.	The departmental policies and standard operating procedures have been workshopped to all staff and easily accessible.					
<b><u>RISK ASSESSMENT</u></b>						
11.	Management has designed an appropriate strategy for identifying risks.					
12.	Management has developed a system for appropriate responses to risks.					
13.	Management is responsible for identifying, evaluating and responding to risk.					
14.	Risk identification and analysis is regularly carried out.					
<b><u>CONTROL ACTIVITIES</u></b>						
15.	Policies and procedures can lead to producing reliable financial reports.					
16.	Accounting functions are clearly segregated.					
17.	University expenditures are duly approved in advance by appropriately authorized persons?					
18.	The authorization, processing, payments, recording and bank reconciliation functions clearly segregated?					
19.	Personnel authorized to approve transactions are clearly identified?					
<b><u>INFORMATION AND COMMUNICATION</u></b>						
20.	Information should be communicated to all stakeholders.					
21.	Transactions are promptly recorded and classified to provide reliable information.					
22.	Communication helps to evaluate how well the guidelines of the University are working.					
<b><u>MONITORING</u></b>						
23.	Monitoring of internal controls is built into the daily operating activities and is done on a continuous basis.					
24.	Management closely monitors the implementation of internal controls.					

25.	Monitoring helps to determine whether controls under the University are effective.					
26.	Monitoring covers the evaluation of the effectiveness of internal control in achieving set objectives.					

**SECTION C: FACTORS AFFECTING THE EFFECTIVE IMPLEMENTATION OF INTERNAL CONTROLS**

Kindly state your level of agreement or disagreement with the following statements by putting a tick against that which best describes your position. The scale ranges from Strongly Agree (5), Agree (4), Uncertain (3), Disagree (2) and Strongly Disagree (1).

	STATEMENT	5	4	3	2	1
	<b><u>COMMUNICATION</u></b>					
27.	In my department there is communication that provides a clear understanding of financial reporting and safeguarding controls.					
28.	My department considers communication a critical component of internal controls.					
29.	Communication from senior management in my organisation demonstrates to employees that control activities should be taken seriously.					
	<b><u>MONITORING</u></b>					
30.	There are adequately designed internal controls to determine the monitoring of processes.					
31.	In my organisation, monitoring processes are properly executed and effective at any given point in time.					
32.	The monitoring of internal controls in my organisation achieve the organisation’s strategic and operating objectives.					
33.	The monitoring of internal controls in my organisation achieve the organisation’s compliance and reporting objectives.					
	<b><u>ORGANISATIONAL VALUES</u></b>					
34.	Our organisational values influence an attitude towards internal controls and control consciousness.					
	<b><u>MANAGEMENT SUPPORT &amp; COMMITMENT</u></b>					
35.	Top management sets an example for subordinates that depicts the organizational values.					

36.	Top management sets an example for subordinates that influences the behaviour of subordinates towards internal controls.					
37.	The management provides the leadership needed to establish and guide an integrated internal control framework.					
	<b>OVERSIGHT PROVIDED BY THE AUDIT COMMITTEE</b>					
38.	In my organisation the audit committee positively supports having strong internal controls.					
	<b>ORGANISATIONAL STRUCTURE</b>					
39.	In my organisation there is a support structure that promotes segregation of duties.					
40.	Authority and responsibility, appropriate reporting lines, and free flow of information across the organization is supported by a good organisational structure.					
41.	My University has a proper organisational structure that supports internal controls.					
	<b>INTERNAL AUDIT</b>					
42.	Internal audit function assesses the effectiveness of internal control system and provide recommendation for improvement.					
43.	Internal audit provides independent assurance that an organisation's risk management, governance and internal control processes are operating as intended.					
	<b>HUMAN RESOURCES POLICIES</b>					
44.	Human resource policies and procedures send messages to employees regarding expected levels of integrity, ethical behaviour, and competence.					

#### SECTION D: RECOMMENDATIONS

What can be done to improve the internal controls of the University?

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## Appendix E – LETTER FROM THE STATISTICIAN

**Assan Mususa**  
**Unit 5 Carlsworld Gardens**  
**Midrand, Johannesburg**  
**assanmususa@gmail.com**  
**+27 67 702 5793**

01 December 2023

Farisha Pillay  
9 Oranewood Gardens,  
Woodview,  
Phoenix  
4068

Dear Farisha Pillay

**Subject: Acknowledgement of Statistical Research Assistance**

I am writing to express my sincere appreciation for the opportunity to provide statistical research assistance for your research project titled "The effectiveness of internal control systems used in monitoring financial resources at a higher education institution." It has been a pleasure working with you and contributing to your academic journey through the application of statistical analysis in your study.

As a statistician, I am grateful for the trust you placed in me to provide guidance and support in the application of statistical methods and techniques. It has been my goal to assist you in conducting appropriate data analysis, ensuring accuracy and reliability in your research outcomes. Our collaboration has allowed me to witness your growth and development in applying statistical concepts to real-world data, and I am confident that this experience will serve you well in your future academic and professional pursuits.

I would also like to acknowledge the support and guidance provided by your supervisor, DR CJ NYIDE (PHD). His expertise and mentorship have played a crucial role in shaping the direction of your research and ensuring its alignment with academic standards. I am grateful for his insights and the opportunity to collaborate with both of you on this project.

I am confident that the findings of your research will make a valuable contribution to the existing body of knowledge in your field. Your dedication to conducting rigorous statistical analysis will undoubtedly enhance the credibility and impact of your work, and I am excited to see the outcomes of your research.

Should you require any further assistance or have any questions regarding the statistical analysis conducted for your research, please do not hesitate to reach out to me. I am more than happy to continue supporting you in any way I can.

Warm regards

(MSc in Accounting and Finance; Bccm in Accounting; Dipl in higher education; Cert. in research methods)

## Appendix F – LETTER FROM THE LANGUAGE EDITOR

Dr T S Pillay  
15 Lucia Lane, Northdene, Queensburgh  
pillayts@gmail.com  
0741451599

1 December 2023

Farisha Pillay

**Masters Dissertation: The effectiveness of internal control systems used in monitoring financial resources at a Higher Education Institution**

I would like to confirm that I have reviewed and edited the thesis for language and layout. I have returned the document with the suggested changes to the student to facilitate the required corrections.

.....

TS PILLAY

## Appendix G – TURNITIN REPORT

ORIGINALITY REPORT			
13%	8%	5%	7%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS
PRIMARY SOURCES			
1	Submitted to Midlands State University Student Paper		3%
2	repository.smuc.edu.et Internet Source		<1%
3	fastercapital.com Internet Source		<1%
4	"The Internal Auditing Handbook", Wiley, 2012 Publication		<1%
5	kipdf.com Internet Source		<1%
6	openscholar.dut.ac.za Internet Source		<1%
7	irbackend.kiu.ac.ug Internet Source		<1%
8	ir.dut.ac.za Internet Source		<1%
9	ir.ucc.edu.gh Internet Source		<1%