



**Public procurement system challenges at selected higher
education institutions in KwaZulu-Natal, South Africa**

By

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DEDICATION 1

*All of my humble pranaams and salutations at the Lotus Feet of my Guru,
Bhagawan Sri Sathya Sai Baba ...*

My Swami – thank you for you the mental strength and determination you provided to me on a daily basis to completing my thesis.

You gave me courage, wisdom and divine guidance – without you my Lord I would not have come this far.

You guided my family when I could not be around.

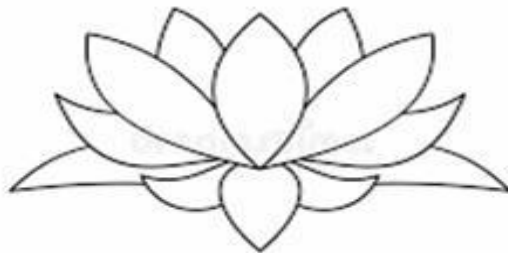
Your life is MY MESSAGE.

In your name I will forever continue to spread hope, education and kindness to fellow beings of this world. I am blessed to live in the Golden Age of Sai.

LOVE ALL ... SERVE ALL ...

Help Ever, Hurt Never ...

JAI SAI RAM



DEDICATION 2

This PhD thesis is dedicated to my twin sons, Kairav and Tharshey Gurayah

The last 9 years have been a wonderful, scary and life-changing journey, my sons. I went through many health challenges before I had you, but nothing stopped me from bringing you into the world.

25 October 2013 – was and will always be the most momentous day in my life – THE DAY I BECAME A MUM.

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Go conquer your dreams my precious sons! Go further than Dad and I have ...

DECLARATION

Student number: 981194636

I, Jayrusha Ramasamy Gurayah declare that:

- (i) The research reported in this thesis, except where otherwise indicated, is my original research.
- (ii) This thesis has not been submitted for any degree or examination at any other university.
- (iii) This thesis does not contain other persons' data, pictures, graphs or other information, unless specifically acknowledge as being sourced from other persons.
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LIST OF COMMONLY USED ACROYNOMS

| | |
|----------|--|
| CIPS: | The Chartered Institute of Procurement and Supply |
| DUT: | Durban University of Technology |
| HEI: | Higher education institutions |
| 4 IR: | Fourth (4 th) Industrial Revolution |
| NT: | National Treasury |
| OECD: | Organisation for Economic Co-operation and Development |
| PFMA: | Public Finance Management Act |
| PPT: | People, Process, Technology |
| SC: | Supply Chain |
| SCM: | Supply Chain Management |
| TOE: | Technology, Organisation and Environment |
| UKZN: | University of KwaZulu-Natal |
| UNIZULU: | University of Zululand |
| VC: | Vice Chancellor |

ABSTRACT

Over the last decade in South Africa, public procurement has evolved significantly and attracted much scholarly research interest. There are challenges that exist in public procurement from provincial to national levels, these challenges are a combination of various areas of concern in the public sector. The researcher has unpacked these challenges into clear study constructs. *The key procurement challenges resonate with the quality of PEOPLE, PROCESS and TECHNOLOGY amassed by the individual higher education institutions.* In this study three higher education institutions were selected. The procurement policies and principles that entrench the higher education institutions (HEIs) in terms of delivering high levels of service and maintaining financially viable institution. Universities as institutions of higher learning have a mandate in ensuring that efficient and effective public procurement occurs at all levels.

Against this backdrop, this study explored and identified the public procurement challenges at higher education institutions in KwaZulu-Natal (KZN). The procurement system in these institutions exposed a gap on qualified and capable talent, in accord processes and the dearth of adoption emerging technology to achieve efficiency and effectiveness of procurement systems. The findings of study revealed the challenges, inefficiencies and technological barriers in the procurement systems. To model a financially and operationally feasible, 4 IR technological driven procurement system, a conceptual model was created with an agile and resilient procurement system's potential in consideration, with a focus on building adaptability and demand responsiveness.

The main aim of this study is to identify the public procurement challenges of the selected HEIs and to detail the public procurement system by focusing on the main constructs of the study: *people, process and technology*. This study made use of an exploratory and descriptive qualitative research approach. The research setting will be the campuses of the selected HEIs. The gathering of primary data via semi-structured in-depth interviews were collected. A sample size of thirty procurement employees and management of the three HEIs were interviewed. Thematic analysis was used as the data analysis technique. The qualitative data was analysed and processed by NVivo.20 software.

Keywords: Accountability, corruption, ethics, higher education institutions, people, process, public procurement, public procurement systems, and technology.

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CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 INTRODUCTION

In South Africa, public procurement is an integral part of the government's supply chain (SC) and plays an important role in the development of service delivery and performance of this division. Public procurement must ensure that the dutiful role of trust is displayed at all times, in ensuring efficiency in the delivery of goods and services to the public. It is the clear involvement of all process in a public domain directly linked and related to the procurement of goods and services by authorised, gazetted government departments, procuring entities (who are commonly known as 'parastatals' that are owned completely or partly by the South African government) and local municipalities. (Uyarra & Flanagan, 2009: p. 2).

In South Africa, Higher Education Institutions (HEIs) fall within the domain of public procurement, and as the demand for higher education in South Africa remains relevant and, on the rise, the expectation of HEIs to meet this mandate is to improve all of their operational and system outlooks (Masete & Mafini, 2018: p. 1). Public procurement is a process that is legally regulated and administered by public procurement laws and acts, whilst these laws and acts may differ from one country to the other, globally, procurement accounts for a substantial part of global economies. Thus, it can be said that public procurement is the power supply in the SC. Collectively with operations, public procurement forms an essential function in the SC. Public procurement brings together and links all entities and members in the SC. This, in turn, helps to ensure quality within that chain. Public procurement is the contributing factor to revenues, costs and valuable SC relationships. Public procurement supplies (makes available) goods and services to the basic, fundamental needs of the public sector (Van Weele, 2018: p. 140). Internationally, governments around the world are seen as the major financiers; activities and monetary values involved in public procurement are substantial, therefore it is the duty of every government to make certain that resources are utilised most clearly and ethically, which, promotes effective development of a country's populations' living standards and their economy (European University Association Report, 2018).

In many countries across the globe, economic progression and development are relatively increased by the accomplishments and undertakings of HEIs. From the perspective of a few researchers (Bhorat, Cassim & Tseng, 2016; Boulton & Lucas, 2011; Pouris & Inglesi Lotz, 2014), HEIs have become further suppliers, which results in a flow effect that further fuels the economy.

“Public procurement is the function whereby public sector organisations acquire goods, services major driver in the creation and enhancement of human capital. Higher Education Institutions directly aid the preservation and development of knowledge through advanced research, as well as the management of knowledge through various collaborations with different stakeholders that are affiliated with these institutions. In South Africa, the National Development Plan (NDP), clearly articulates the need for HEIs to produce skilled graduates for the current and future economy of the country (Nicolaidis, 2014: p. 3). Universities as HEIs produce their own outputs and further create employment in the various professions within different skill sets and levels, depending on qualifications and experience. One such profession at universities is *procurement*, which has a huge effect on the indirect economic process of the product from different sectors in support of their operational processes and activities. This has a direct influence on the economic activity – as suppliers directly linked to the university (university suppliers) buy/purchase from other suppliers who in turn purchase and development projects from suppliers in the local and international market. This function is subject to the five (5) general principles of *fairness; equitability; transparency; competitiveness* and *cost-effectiveness*” (Ambe & Badenhorst-Weiss, 2012a: p. 249). The procurement department, nationally, is at the forefront of all South African HEIs, and is considered critical to organisational structure. Although historically considered a back-office function (OECD, 2017: p. 42), over the last decade emphasis has been placed on the function and performance of procurement and public procurement in South Africa. In most appropriate functioning organisations and institutions, the public procurement system is seen as integral to ascertaining that necessary tasks are completed effectively, meaning that organisations and institutions deliver quality and contribute to growth in South Africa. Procurement staff/employees (people), suitable, accurate processes, and 21st-century technology are pivotal in ensuring and maintaining the appropriate functioning of the procurement system (Moshidi, 2019: p. 2).

The analytical aspects of the producing chain and associated coordination in institutions include that of *people, process, and technology*, which are considered crucial components. People, process and technology assist institutions that want to change strategies, uncover challenges and reconsider the institution's strategic objectives. The evaluation and monitoring of the consequences and effectiveness of these three concepts need sophisticated insights to effectively focus strategic actions (Mêda, Sousa, Gonçalves, Calvetti, Dias, Camargo, 2020: p. 19). This research primarily focuses on the examination of issues encountered in public higher education institutions (HEIs) by emphasising the constructs of people, process, and technology. The implementation of innovation processes necessitates the use of approaches that assess several factors, including people, processes, and technology. The outcome of the process is contingent upon the intricate equilibrium of these factors in alignment with the appropriate parties involved and businesses.

Although there has been abundant research on public procurement in South Africa since 1994, very limited research has been carried out in the context of HEI procurement systems (Dorasamy & Fagbadebo, 2021: p. 75). With this considered, this study aimed to identify and explore the challenges of public procurement systems at selected South African HEIs. This chapter presents the rationale of the study, a review of empirical research, conceptual and theoretical frameworks, research problem, research aim, research objectives and questions, the contribution of the study, and research methodology.

1.2 BACKGROUND OF THE STUDY

Public procurement is of concern to public entities as it is associated with the competitiveness of an organisation (Gurría, 2016: p. 3). Proper use of procurement can lead to better resource allocation and management, as this enables costs to be efficiently managed and the goals of the organisation to be achieved. Procurement can thus be centralised, decentralised (devolved), or hybridised. Each has its own benefits, depending on the organisational structure. Of note is that each HEI has its own procurement system and this study will assess this further. The focus of this research will be a detailed investigation of the public procurement systems of the following HEIs:

1. Durban University of Technology (DUT);
2. University of KwaZulu-Natal (UKZN); and
3. University of Zululand (UNIZULU).

The three selected HEIs are situated in one of the major provinces in South Africa, and the study will make a valuable contribution to our knowledge in terms of identifying and understanding the systematic challenges of procurement. DUT, UKZN and UNIZULU are a mix of universities of technology, and traditional and comprehensive universities. DUT is a university of technology, UKZN is a traditional university and UNIZULU is a comprehensive university. This combination of HEIs will allow exploratory reflections on the bigger HEIs in KZN, South Africa. This will provide a backdrop to new research knowledge and an understanding of the challenges faced by procurement systems at HEIs. Intense perspectives of the procurement system will be explored with key senior and junior employees, and relationships with suppliers (through the lens of employees), procurement processes and the use of technology will be investigated.

Significant efforts have been made in Western Europe and the United Kingdom (Kupriyanova, Estermann & Sabic: 2018: p. 603) to transform the procurement systems and processes of HEIs (Colleges, Universities and Higher Education Learning Centres) to ensure the technological efficiency and governance of procurement departments. These systems and processes have been efficiently optimised in some HEIs and the alignment of employees, processes and technological innovations has transformed the procurement departments into highly functioning representatives of efficiency (Young, Nagpal, & Adams, 2016: p. 995). However, limited such efforts have been made in Africa and South Africa (KPMG Case Study, 2016: p. 4). Since the field of procurement within Supply Chain Management (SCM) is dynamic, the study of the literature, trends, and new developments in this research will further add to the body of knowledge and provide new insights into this field in a southern African context.

Public procurement is characterised by a technology that is intense in its scrutiny of political anticipations as well as its programme appraisals for the improvement of service (Eyaa & Oluka, 2011). Despite the improvements in public procurement, there have been some challenges such as the lack of compliance with legislation and policies as well as irregularities of tender. Some of the past errors include when the South African government spent R26.4 billion in 2010 in contravention of the regulations and laws of procurement, and this is seemingly an ongoing challenge (Smart Procurement, 2011).

At the Mangosuthu University of Technology (MUT), a broad spectrum of ghost employees, payroll irregularities and corrupt activities were taking place. The existence of ghost workers is a corrupt phenomenon that is closely linked to issues of leadership and corruption within human resources. The corruption technique used was the establishment of a replicated employee profile and the manipulation of financial information. During the course of the investigation, the fraudulent profile was removed. The examination of a limited number of employee cases reveals evidence of a theft amounting to R2.4 million, resulting from several breaches of the payroll system. Instances have been documented when unauthorised personnel were granted the ability to formulate their own contractual agreements, modify the stipulated wage figures, and sometimes alter the term of those contracts (RSA Government Gazette, 2022). The spectrum of public procurement challenges at MUT is an indication of why understanding and identifying all aspects of the people and process concepts of public procurement are significant at HEIs.

In 2021, problems related to public procurement problems arose at the University of Fort Hare (UFH). The problems encountered were a diverse range of corrupt practises across multiple operational tiers. Notably, the institution pursued legal action against a Nigerian Professor for engaging in irregular admission and post-graduate registration processes involving two students who hold senior political positions in the Eastern Cape (Dayimani, 2021: p. 1). An indication of a poor public procurement system, checks not in place. In the course of investigating both student admission fraud and money laundering activities perpetrated by the fugitive professor, the Hawks conducted raids in various locations within Bisho, East London, and Alice. The objective of these raids were to apprehend the professor, who had defrauded the university of over R5 million through the provision of unauthorised and dubious academic programmes to provincial government personnel (Mokhoali, 2021: p. 1). The spectrum of

public procurement challenges at UFH is an indication of why HEIs need to have a workable, functional information technology systems in place.

Universities as public institutions form part of higher education and have a pivotal role to play in the production of knowledge creation, generating graduates at undergraduate and postgraduate levels, and delivering and providing services to all stakeholders of the university in achieving institutional success of transnational and national goals within the African continent. Thus, the relevance and particular importance being placed on universities as public institutions to operate within financial agendas and procurement is an important part of the financial profit-making financial agendas (Green, 2014).

1.3 CONTEXTUAL HISTORY OF DUT

The ML Sultan Technikon and the Technikon Natal merged into one university in April 2002, becoming what is now known as the Durban University of Technology. Initially known as the Durban Institute of Technology, the institution transitioned into its current identity as the Durban University of Technology in 2007. Durban University of Technology (DUT) is a university with many campuses that may be found in the province of KwaZulu-Natal in South Africa. It has two campuses in Pietermaritzburg in addition to its five campuses in Durban. As of the year 2022, the DUT had roughly 31,991 registered students. The university is one of just five technical schools on the African continent that today confers the doctoral level of education. The Durban University of Technology (DUT) is a multi-campus university of technology that is at the forefront of higher education, technical training, research, and innovation. DUT is a member of the International Association of Universities. The University of Durban-Westville (DUT) would want to see its people (faculty, staff, students, and so forth) become more entrepreneurial and inventive in line with its plan ENVISION 2030 (www.dut.ac.za).

DUT is regulated and managed in line with the Higher Education Act of 1997, and the South African Minister of Education has approved all of DUT's policies as well as its constitution. The political history of South Africa is one of a kind, and the country faces issues that are one of a kind as well. This has been illustrated through mergers, reform agendas, and university re-organisation plans that are highly specific to South Africa (www.dut.ac.za).

1.4 CONTEXTUAL HISTORY OF UKZN

The University of Natal (UND) and the University of Durban-Westville (UDW) merged to form the University of KwaZulu-Natal (UKZN) in 2004. The Natal University College was established in Pietermaritzburg in 1910. As student numbers grew and a broader range of courses were being offered with the institution performing at its ultimate, the University of Natal (UND) was born and gained its university rank, in 1949. At the University of Natal, the medical school was opened in 1947 for all race groups (African, Indian and Coloured) in South Africa. The University of Durban-Westville (UDW) was established in the early 1960s, as student numbers increased, it was granted university status in 1971. In 1972 the university moved to Westville campus and opened its doors to all race groups in South Africa (UKZN Merger Report, 2007).

In 1994, the then newly elected democratic government, under the Presidency of the late Nelson R. Mandela projected the transformation changes to HEIs, where certain universities were to merge with others. Professor Kader Asmal, the Minister of Education at the time, made the strategic decision on which HEIs would merge and which would remain unmerged. The University of Natal and the University of Durban-Westville were identified in 1997 by Professor Asmal as part of the merger. Whilst there were many given reasons by the Minister at the time for the merger, the following were cited as most prevalent:

- a) Redress the imbalances of past between white and black institutions;
- b) Promotion of staff equality;
- c) Through the reduction of overlaps by ensuring the efficient and effective use of resources and elimination duplication in academic programmes and degrees; and
- d) Consolidation of academic offerings in meeting provincial and national needs.

As a justly fledgling university of sixteen (16) years, UKZN has grown and sustained itself as the biggest and leading university in the province of KwaZulu-Natal. Resulting from the merger, UKZN has five (5) campuses across KwaZulu-Natal (Pietermaritzburg, Howard College, Westville, Nelson Mandela Medical School and Edgewood) and is made up of four (4) college structures (Agriculture, Engineering and Science, Health Sciences, Humanities and Law and Management studies. Each college is headed by a Deputy Vice-Chancellor and Head of the college. Every college has its very own governance and academic structure. Each college has various schools within and each school is headed by a Dean. Administrative responsibility, financial responsibility and accountability are devolved with regard to certain aspects of work structures. The Westville campus is the corporate control centre (headquarters) of UKZN.

UKZN is directed and governed following the Higher Education Act of 1997, and all its policies and constitution have been approved by the South African Minister of Education. South Africa has a unique political history and challenges that have been demonstrated by mergers, transformation agendas and university re-organisation strategies that are very detailed to South Africa (UKZN, 2022).

1.5 CONTEXTUAL HISTORY OF UNIZULU

The University of Zululand (UNIZULU) is the only comprehensive higher educational institution located north of the Tugela River in the South African province of KwaZulu-Natal. Its new status is in line with South Africa's National Plan for Higher Education, which aims to eliminate injustice as well as unnecessary redundancy in the system. As a consequence of this, UniZulu provides career-focused programmes in addition to a restricted number of relevant university degree courses. These programmes and courses have been designed to attract future workers as well as companies. Graduates of the university should have a high level of knowledge and skills, as well as an education that prepares them for citizenship and active involvement in society. This is the goal of the university. It attempts to establish partnerships with funding agencies both in the United States and in other countries so that it may carry out its mission successfully. The Prince of Phindangene, Mangosuthu Buthelezi, was instrumental in the establishment of UniZulu. He served as the institution's first chancellor when it was first created. The college eventually received university standing in the year 1970. Since that time,

the institution has continued to grow, and it has seen a growth in the number of students coming from different countries and regions around Africa.

UNIZULU is committed to preserving and expanding its network of links with peers and partners, which includes business, industry, and government institutions – both domestically and internationally. This is being done to ensure that the organisation is always up to date on the latest practices and trends that are occurring on a national and international scale. The Higher Education Act of 1997 is used to control and administer UNIZULU, and the South African Minister of Education has approved all of UNIZULU's regulations as well as its constitution. This ensures that UNIZULU is run according to the law. South Africa is a unique country, both in terms of its political history and the problems it now confronts. Both of these aspects are unmatched by any other nation. This has been shown by the fact that South Africa-centric mergers, reform agendas, and university reorganisation plans have been implemented (UNIZULU, 2022).

1.6. TERMINOLOGY/DEFINITION OF CONCEPTS

1.6.1 Procurement

Procurement can be defined as the “*management of a company's or institution's external resources in such a way that the supply of all goods, services, capabilities and knowledge which are necessary for running, maintain and managing the company's primary and support activities is secured at the most favourable conditions covering the materials, information and money flows up to the point of consumption*” (Van Weele, 2018: p. 7). It is a methodological and operational process that is very systematic, thus, it is strategic in nature and helps an organisation or institution realise that maximum value can be delivered through identifying suitable and key suppliers, negotiating with suppliers, contracting, conducting market research and systems development. Procurement is broader in its processes at organisations and institutions compared to that of purchasing and once more is therefore seen as a more strategic and high-functioning function (Burt, Petcavage & Pinkerton, 2010).

1.6.2 Purchasing

Purchasing is an orderly process, in that it assists the user with the right quality of products and services at the right quantity, at the right time at the right price (Monczka, Handfield, Guinipero, Patterson, & Waters, 2011).

1.6.3 Procurement System

A procurement system is a structure present that allows an organisation to simplify and facilitate smoother efficiency of the procurement process of: “orders, requisitions, invoicing and good receipt” (Rabin, Munzenrider, & Bartell, 2009). Procurement systems allow for the achievement of storing supplier information in catalogues and contracts. The course of action of buying and tendering are stored by the procurement system. Procurement activities from the buyer (employees) to the supplier, all business activities and procurement-related processes are efficiently managed and maintained by the procurement system.

1.6.4 Public Sector

According to Monczka, Handfield, Giunipero, and Patterson (2008: p. 2), the public is governed and regulated by the government of a country. It is the sector that is accountable and answerable for the delivery of goods and services by a country’s government for its population. One of the key purposes is to maintain low costs and create profit.

1.6.5 Higher Education Institution

Higher Education Institutions are institutions made up of both the private and public sectors in a country. They are places of learning where students and academics meet to converse and share knowledge around subjects through communication delivery of topics and lectures. The presence of universities is based on the philosophies of research and teaching, as cited by Boulton and Lucas (2011: p. 2506).

1.6.6 Supply Chain Management

Supply chain management, as defined by Van Weele (2014: p. 429), is the “management, information, facts and financial incomes associated with the flow and transformation of goods and services up from raw materials and suppliers, in a way that all goals and expectations of the consumer and end-users are met within timeframes and as expected”.

1.7 UNDERSTANDING THE SETTING OF PUBLIC HEIS IN SOUTH AFRICA

All public South African HEIs are directed and instituted by the Higher Education Act (HEA) No. 101 of 1997 in South Africa. The HEA rules and formal governance structures were amended accordingly respectively in 1999, 2000 and 2001. The year 1994 saw the first democratic election in South Africa, thus bringing about a change in governmental structures, many Acts of Parliament and the South African higher education system were reorganised. It was a new dawn of the higher education restructure into a background further outlined in the National Commission on Higher Education (NCHE) (SouthAfrica.info, 2014). The NCHE put forward the argument that the discrepancy and differences in the educational setting up were a challenging task for all higher education systems. This further impacted systems and processes in institutions of their programmes in South Africa (National Commission on Higher Education, 1996: p. 165).

This process was pushed forward by the amalgamation and mergers of technikons and universities (DOE, 2004: p. 1). The higher education structure was then condensed from thirty-six (36) to twenty-three (23) public higher education institutions (HEIs). The twenty-three HEIs were then broken down further and grouped into traditional academic universities, comprehensive universities, universities of technology and new institutions of higher education formed in 2014.

Table 1.1: Public HEIs in South Africa

| UNIVERSITIES (TRADITIONAL) |
|---|
| University of Fort Hare |
| University of Cape Town |
| University of the Western Cape |
| University of Stellenbosch |
| University of Witwatersrand |
| Rhodes University |
| University of KwaZulu-Natal |
| North-West University |
| Sefako Makgatho University of Health Sciences previously known as University of Limpopo |
| University of the Free State |
| University of Pretoria |
| COMPREHENSIVE UNIVERSITIES |
| University of South Africa |
| University of Johannesburg |
| University of Zululand |
| Nelson Mandela Metropolitan University |
| University of Venda |
| Walter Sisulu University for Technology and Science |
| UNIVERSITIES OF TECHNOLOGY |
| Durban University of Technology |
| Vaal University of Technology |
| Tshwane University of Technology |
| Central University of Technology |
| Cape Peninsula University of Technology |
| Mangosuthu University of Technology |
| SINCE 2014 |
| Northern Cape Institute of Higher Education |
| Mpumalanga Institute of Higher Education |

(Source – Adapted from: Mouton, Louw & Strydom, 2013).

It can be deduced from Table 1.1; twenty-three universities exist in their different segments. HEIs in South Africa merged and were founded with a specific intention to develop more academic and technological-based studies to further assist the research of these areas of academic knowledge, which were indeed the lack thereof (DoE, 2002: p. 24). Thus, the mergers were established to help balance academic demand and create an equilibrium by combining previously disadvantaged universities with that historically advantaged universities. Universities in South Africa, are projected to cater for multiplicity; diversity and be able to respond efficiently to changes and be flexible in dealing with these changes. With universities trying to accommodate changes and being flexible in adjusting to these changes, it would be predictable that challenges do occur, some of these challenges are:

- “Universities being able to define and transpose themselves;
- Curriculum/Syllabus and academic programmes combinations, and
- Matters of diversity and integration clashes” (Mbabane, 2010: p. 3).

Through the processes of a procurement system, funds and resources must be effectually managed to address these challenges.

1.8 APPLICATION AND DEVELOPMENT OF PUBLIC PROCUREMENT IN HEIS IN SOUTH AFRICA

The procurement system and its role in HEIs are viewed by literature to be some of the fundamental responsibilities of supply chain management (Dlamini, 2016: p. 2). The public sector domain of SCM has faced copious challenges, and various literature has been written around these challenges over the last two decades in South Africa. In 2015, the National Treasury pointed out that stakeholders did not fully apprehend the strategic importance of SCM. Watermayer (2011) emphasised that organisational structures are operating in a very messy and tedious way and at times problematic, which brings to the surface the inflexible leadership, and poorly motivated staff that result in a high labour turnover. Further procurement system challenges were related to uncertain procurement processes; lack of understanding in trying to meet market-related demands and lack of technical knowledge by procurement staff. (Burger, 2016; Dlamini, 2016; KPMG South Africa, 2016). In certain public sectors, it was

found that the rules and regulations of procurement were difficult and unclear to comprehend by various stakeholders (Ambe & Badenhorst-Weiss, 2012a). The critical challenge in HEIs of the public sector was related to the lack of accountability, fraud, corruption that filtered into below-average delivery of service throughout South Africa (Universities South Africa, 2015). Thus, various stakeholders within the public sector and in HEIs are presented with the challenge to improve, and find suitable solutions to procurement within SCM and practically add to the attainment of the South African government's socio-economic development requirements.

The realisation of the significance of SCM has brought yielded attentiveness in South African universities where these public institutions have created a division of service that focuses on the application of proper SCM processes in their institutions. When the division of service is effectively managed in HEIs, it is seen in the quality of the work produced by SCM professionals. In HEIs, globally, the most important tasks are centred on the procurement division, to administer, manage and oversee the procurement of goods and services that are needed by various departments of the HEI (Hassan, Ramli, Roslan & Jaafar, 2015: p. 672). In South Africa, all public universities receive an annual procurement spending total that when added up, runs into millions of rands per HEI. In the 2014 financial year, for example, the cumulative spending by South African HEIs was at an amount of almost R25.6 billion. (Business Tech, 2015). These spending funds have been divided and used for the development and implementation of various SCM activities, which include: supplier relationship management; service management; customer relationship management; procurement and order processing (Poluha, 2016).

In South African public universities, large value items are procured and processed through the tender competitive bidding system, which necessitates various types of engagements and meetings with external, internal stakeholders and involved parties who have a mutual and invested interest in the running of the university (KPMG South Africa, 2016). Thus, university policies should postulate all interested parties and stakeholders that are part of the procurement process (PricewaterhouseCoopers, 2015). Stakeholders are an important part of supply chain processes and in particular procurement, they need to be consulted as different sources of information can be looked into. Without this consultation, conflicts occur in the procurement process, as part of a broader system, the procurement process needs to operate effortlessly in

HEIs with the knowledge and input of all various and relevant stakeholders (Al-Turki, Duffuaa, Ayar & Demirel, 2008: p. 213).

1.9 SIGNIFICANCE OF THE STUDY

First, the findings of the study will enable the universities to assist with the identification of ‘*contemporary*’ change to the public procurement system structure currently in place, through the analysis. Since procurement is the subject of budgetary processes, it is seen as a captious part of the financial strategy to accomplish service delivery against budgetary constraints in HEIs as they make use of public funds. Procurement plays a strategic role, thus looking into a study of this nature, the procurement system of managing costs, ensuring fairness and sustainable competitiveness is imperative, as are suppliers who bring in revenue and play a big part in the procurement system and are part of the integral work process of procurement. Additionally, the findings will create significant awareness of Industry 4.0 and how the lack of such technological advancement can be detrimental to public entities.

Secondly, the findings will contribute to the knowledge and publications on HEI public procurement systems in South Africa. The literature (theoretical contribution) and analysis flowing from the findings will also help contribute to the academic knowledge of HEI procurement systems in South Africa. Based on the collective review of the literature conducted, this study will enable the understanding of the challenges encountered. The study will provide the opportunity to modify certain aspects of people, process and technology that have proved to be a challenge. The novel contribution of this study are analysed through the lens of the three construct: people, process and technology. It is a unique study in that it encompasses assessing challenges within each lens of the public procurement HEIs systems. The study will make a significant contribution to the need for modification of the public procurement system and process in a higher education context as adopted by a developing country like South Africa. Besides this contribution, the study shall deliberate on the research methodological aspects that can lead to further significance.

Lastly, this study could help policy-makers in South Africa in the public sector and, to an extent, in the private sector. As policymakers are drawing up supplementary public procurement deliverables, they will realise and become aware of why there needs to be a specific focus on procurement in HEIs and the extent to which challenges must be addressed.

1.10 RATIONALE/JUSTIFICATION OF THE STUDY

The rationale of this study is focused on the proposed conceptual framework. In addition, this study will develop a conceptual model to maintain and support the application of the public procurement system which will help address the challenges experienced at HEIs. In this study, the outcome of the model will assist in the practical implementation of a robust public procurement system at HEIs. It is important that the perception of the employees and management of the procurement system be understood and that remedial solutions be advanced in terms of enhancing the system or understanding the public procurement challenges so far witnessed. This evidence rationalises the need for the researcher to identify these challenges, not as a weakness, but to highlight the valuable opportunities of an effective public procurement system in HEIs. The perception of the employees and managers of the procurement system must be understood and a remedying solution should be advanced in terms of enhancing the system or understanding the procurement challenges that are so far witnessed. It is this kind of study that enables remedies to be developed or to be predictively constructed in the process.

1.11 RESEARCH PROBLEM

The procurement system and its role in HEIs is one of the fundamental responsibilities of SCM (Dlamini, 2016: p. 2). The public sector in the South African domain of SCM has faced many challenges as presented in the literature over the last two decades in South Africa (Mazibuko & Fourie, 2017: p. 7). In 2015, the National Treasury pointed out that stakeholders did not fully comprehend the strategic importance of supply chain management. Watermeyer (2011: p. 2), emphasised that organisational structures operated in a messy and tedious way and at times are problematic, revealing inflexible leadership and poorly motivated staff, which results in high labour turnover. Since then, not much has changed. Furthermore, procurement system challenges were related to uncertain procurement processes, lack of understanding in trying to

meet market-related demands, and lack of technical and technological knowledge in procurement staff (Dlamini, 2016; KPMG South Africa, 2016; Manyathi, Burger, & Moritmer, 2021). In certain parts of the South African public sector, procurement rules and regulations have been difficult and unclear for various stakeholders (Ambe & Badenhorst-Weiss, 2012a: p. 245). The critical procurement challenges in HEIs in the public sector were related to a lack of service delivery, accountability, inefficient processes, corruption, and lack of innovative operations that caused below-average delivery of service throughout South Africa (Universities South Africa, 2015: p. 1). Thus, various stakeholders in the public sector and HEIs are presented with the challenge to improve and find suitable solutions to procurement in SCM and this adds to the attainment of the South African government's socio-economic development requirements (Ambe, 2016: p. 279).

Studies on public procurement in HEIs have not focused on the entirety of the procurement system and all its units of operation. These studies focused more on how a part of sustainable development is lacking in public procurement, weak procurement practices, and HEI public procurement challenges. Masete and Mafini (2018: p. 389) further indicated that there is a gap between theory and practice in public procurement, given that most HEIs in South Africa (with a focus on traditional universities) do not evaluate and adapt their systems or keep up with technological advances (linking in with the need to unpack the technology construct at HEIs). Further, research has indicated that in terms of the 'people' aspect of procurement, there are still challenges of poorly arranged organisational procurement structures and underqualified procurement officials/management who further weaken the capability of the public procurement function (Fourie, 2015: p. 2).

In a study by Tomé, Gromova & Hatch (2022: p. 73), they refer to research conducted by Edwards (2011). Edwards (2011) proposed a compelling conceptual framework about the progression of Knowledge Management. The concept delineates three distinct stages, with the first phase being driven by technology, the subsequent phase being influenced by human factors, and the final phase being shaped by other processes. Significantly, the successive stages yielded improved outcomes. The individual held the belief that inside any given organisation, there exists a coexistence of technology, people, and processes. Furthermore, crises, whether they be individual, organisational, or societal in nature, may often be attributed to a deficiency in technological resources, human capital, or operational procedures.

Ultimately, the resolution of every crisis necessitates the use of technology, people, and procedural frameworks. This comprehension pertains to the aforementioned research and serves as crucial concepts for the analysis of the study.

The procurement function at HEIs is to deliver on service-delivery goals in the public sector domain, while facing increased downward pressure due to budgetary constraints imposed by the South African government (Universities South Africa, 2021: p. 1). There have been concerns about governance structures, poor leadership and irrational spending on goods and services at South African universities. In the last decade, 13 South African universities (Masete & Mafini, 2018: p. 340) were placed under maladministration when concerns identified problems in their procurement systems and processes. This advances and cements the critical need for public HEIs to reconsider, regroup and rethink how their procurement systems are operating to ensure accountability, technological advancements and sustainability. The procurement system in the HEIs appears to depict a gap in qualified and capable talent, coordinated processes and the dearth of adoption of emerging technology to achieve efficiency and effectiveness of procurement systems. The study contemplates interrogating the gap towards developing agile and resilient procurement systems to build flexibility and demand responsiveness to model the financial and operational viable procurement system. While studies have addressed public procurement challenges, HEIs are still facing problems that cannot be addressed effectively (Fourie & Malan, 2020, p. 4). The challenges discussed indicate the problem and why there is a critical need for this study.

1.12 RESEARCH QUESTIONS

1.12.1 Main Research Question

What are the challenges of the public procurement (people, process and technology) system experienced by selected public higher education institutions in South Africa (KZN), how can these be overcome?

1.12.2 Sub-Research Questions

1. What are the public procurement system challenges experienced by key employees [people] in procurement at the HEIs concerned?
2. How do the HEI public procurement policies and principles [process] comply with the systems processes of *agility*, *flexibility* and *responsiveness*?
3. How do the *environmental and organisational* contexts in HEIs influence public procurement system performance?
4. How can technological innovations [technology] improve the efficiency and effectiveness of public procurement systems in HEIs?

1.13 RESEARCH OBJECTIVES

This research set out to explore the issues encountered by certain public HEIs in South Africa, particularly in the province of KwaZulu-Natal, in relation to their public procurement system. These challenges include several aspects, including the individuals involved, the processes used, and the technology utilised. Additionally, this investigation aimed to identify potential strategies for overcoming these challenges and contributing to the body of knowledge in public procurement in South Africa.

1.13.1 Main Research Objective

To identify and determine the challenges of the public procurement (people, process and technology) system experienced by selected public higher education institutions in South Africa (KZN), how these can be overcome.

1.13.2 Sub-Research Objectives

1. Identify and determine the systematic challenges experienced by key employees [people] in terms of the current public procurement systems in the HEIs.
2. Evaluate public procurement policies and principles [process] of the HEIs in compliance with the operations of *agility*, *flexibility* and *responsiveness* in their daily tasks.
3. Analyse the public procurement system performance of environmental and organisational contexts being used in the procurement systems of the HEIs.
4. Develop a framework that is innovative and technologically [technology] advanced in supporting HEIs to deal with public procurement system challenges.

1.14 RESEARCH METHODOLOGY

The goal of this section is to present the research design that serves as the foundation for this study, as well as the research methodologies and procedures. The following sections give a summary of the research design, research strategy, data collection, interview guide, and data analysis, as well as an explanation of how the validity and trustworthiness of the data collected in the study were attained.

1.14.1 Research Design

An exploratory and descriptive research approach was employed to fulfil the study's research goals, with a special emphasis on the three chosen public procurement HEIs (central procurement management and college/faculty-based procurement personnel) employees and management. This study's research design entails presenting a full discussion and explanation of the data acquired using the qualitative method to answer the study's research questions. By concentrating on the research's core constructs: people, process, and technology, this study will help to understand the fundamental public procurement issues and crescendos of the chosen HEIs, as well as the detail of the public procurement systems.

1.14.2 Research Approach

According to this research, non-probability sampling approaches are most often used in qualitative investigations. The real achievement of a researcher's function is solely dependent on acquiring access to participants' consent to participate in the study and establishing a research fellowship by verifying sensitivity in gaining cognitive access to participants' data. No participant will answer questions or pass information to a researcher if they do not trust the study environment (Saunders et al., 2016: p. 169). In qualitative research designs, researchers might utilise one or more data-gathering techniques. In qualitative research, a single technique is known as a mono-method, while more than one method is known as a multi-method. A single qualitative approach, structured in-depth interviews, was employed for this investigation (Saunders et al., 2016: p. 170).

1.14.3 Study Site

The research study site is the place where data will be gathered. The research for this project will be undertaken on the actual campuses of DUT, UKZN and UNIZULU. Given the Covid-19 pandemic, online interviews were identified as an option (through MS Teams or Zoom). Staff were presented with the option to choose online or face-to-face as per the HEI's permission to the research guidelines (some staff were still working remotely), the choice was given to the staff member at first by the interviewer. Once the choice of the interview was established, the researcher then followed through with all the processes of setting up the interviews. A report of the findings will be distributed to procurement personnel and management at each institution's campus.

1.14.4 Target Population

The target audience consisted of junior and senior members of central procurement employees in university procurement departments. The essential persons in the research are HEI procurement department employees. The study chose to include procurement managers and staff since their portfolios include the majority of the knowledge and operational choices. The target audience was ten senior workers (procurement managers) and twenty junior employees (procurement officers/administrators who come under the procurement managers' hierarchy) -

a total of thirty individuals. However, three procurement officers and two procurement managers were available to partake in the research.

1.14.5 Sampling Strategy

The researcher was able to pick participants who are explanatory and have complete comprehension and knowledge of the context of the study by using the purposive judgement sample approach. This allowed the researcher to utilise her own judgement in the selection process (Saunders et al., 2016: p. 302). When making her decision to use a sampling method that did not use probability, the researcher took into consideration how difficult it would be to convince management to take part in the study by participating in interviews and responding to requests for interviews.

1.14.6 Sample Size

The indicated sample size for this study was thirty employees. However, three procurement officers and two procurement managers were unavailable to partake in the research. Therefore, in total, a sample size of twenty-five employees were interviewed at the three selected HEIs. The sample size was determined by the use of the purposive sampling technique. Thereby the selected sample size of relevant employees for this research study were chosen. The term "sample size" refers to the selection of a certain number of units from the available data for the investigation (Sekaran & Bougie, 2016: p. 268). The issue of "how many" does not have a straightforward response, and the sample size is determined by a wide range of variables connected to epistemological, methodological, and practical challenges (Vasileiou, Barnett, Thorpe, & Young, 2018: p. 2). Those employees who had been employed by the HEI for a period of less than two to three years were not considered for this study.

1.14.7 Data Collection

Data for this research were collected qualitatively through semi-structured in-depth interviews. More insights into the topic emerged, enabling the researcher to explore deeper into the issue. Qualitative research aids the researcher in advancing the possibilities of the investigation (Aspers & Corte, 2019: p. 143). A qualitative study was also chosen since it would provide the researcher with insights relevant to HEIs and their public procurement procedures. To get a thorough understanding of public procurement procedures, this research used the qualitative method.

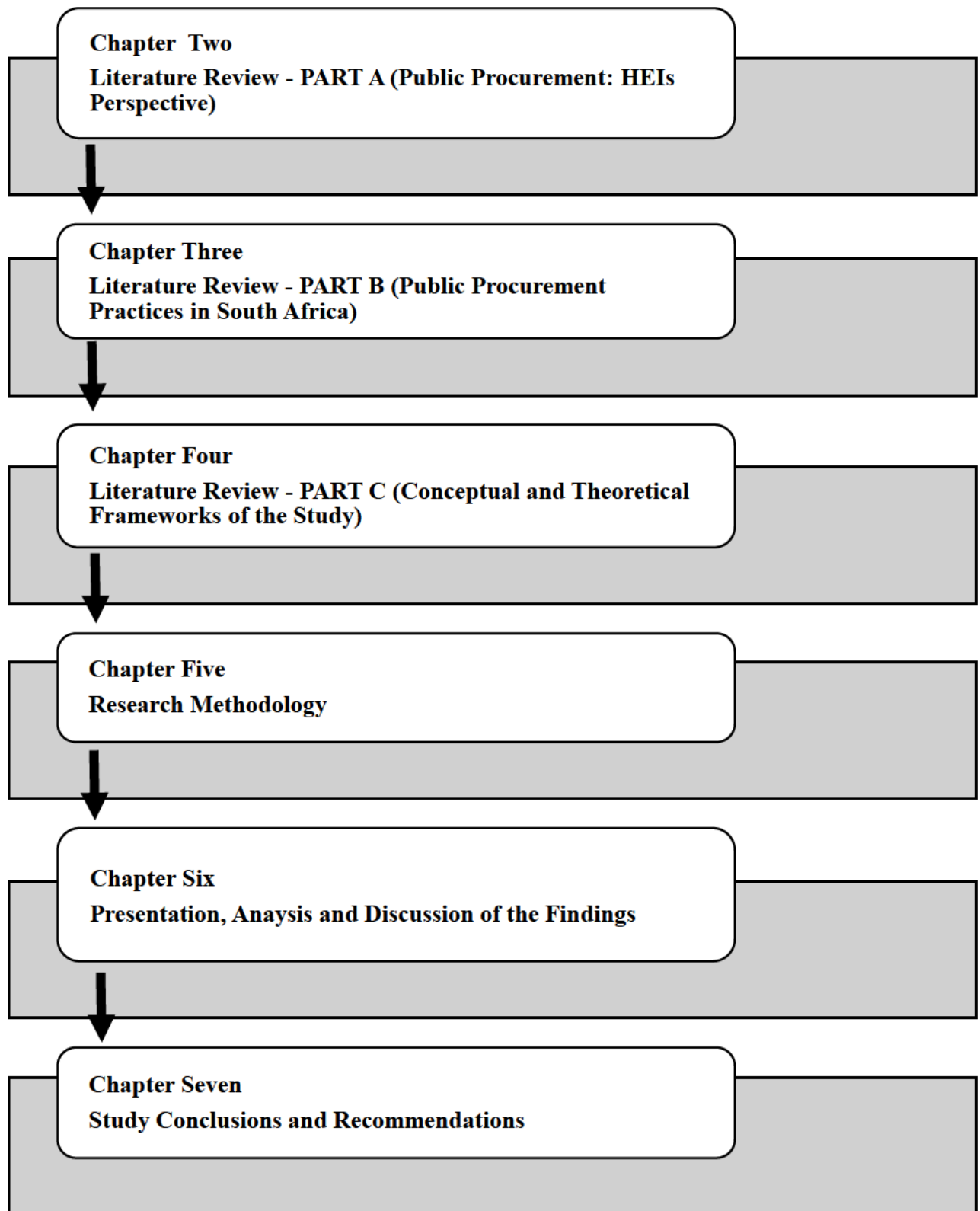
1.14.8 Data Analysis

Data analysis is a critical component of any valid qualitative inquiry. Indeed, the qualitative researcher is sometimes referred to as the research instrument. This is because the researcher's ability to perceive, narrate, and interpret experiences and perceptions is critical to deciding meaning in particular contexts and settings (Maguire & Delahunt, 2017: p. 3351). Thematic analysis was used to gather, evaluate, and analyse data for this project.

1.14.9 Data Quality Control

Data quality control in a research study refers to the actions taken by the researcher to process checks on the reliability and accuracy of the research results. For qualitative investigations, credibility and validity are critical considerations. This qualitative investigation relied on individual trustworthiness and validity. Any research project must be of high quality. The qualitative technique was used to confirm the credibility and trustworthiness of the results.

Figure 1.1: Outline of Thesis Chapters to Follow



(Source: Developed by Author)

1.15 THESIS DISCUSSION OUTLINE

- **Chapter One**

Describes the research's broad introduction. The chapter has defined the first phase of the investigation and contains background data, the topic being investigated, the research questions and goals, scope, and limits.

As per Figure 1.1, the outline is briefly discussed.

- **Chapter Two**

This chapter portrays an in-depth literature review into the literature of studies that have been completed in public procurement, from a Global, African and South African approach. The various studies, research and literature is explored on the topic of public procurement and its regulation mandates at HEIs.

- **Chapter Three**

This literature review chapter is centred around the discussion of literature on public procurement in South Africa. The public procurement practices and the context of public procurement in South Africa is explored and unpacked.

- **Chapter Four**

An extended literature review is unpacked with the focus on the conceptual and theoretical frameworks. The constructs and sub-constructs of the study are further explained. Last this chapter focuses on 4 IR types of technologies and its importance and use of in public procurement.

- **Chapter Five**

Gives the research's research methodology. This includes techniques and strategies for compiling and analysing the data. Additionally, the research methodology and design are covered, then sample methods, the study location, and the data source.

- **Chapter Six**

Describes the outcomes of the study analysis as well as the presentation of the results. The technique of analysis that was used was a qualitative one. This was accomplished by conducting an in-depth review of the data obtained from the participants, which included conducting interviews with a selection of personnel working within the setting of the research. In order to provide a coherent explanation, this chapter offers the facts that are pertinent to the study questions and goals that were outlined earlier. In this section, the results of the empirical study are discussed in connection to the research questions and goals. The developed conceptual model is presented and its' research contributions are discussed.

- **Chapter Seven**

This relates to the outcome of the study as well as the suggestions for further research. The chapter concludes with a summary of the study, some inferences drawn from the findings, and some suggestions for academic and practical measures, as well as the promise of more research.

CHAPTER TWO

LITERATURE REVIEW – PART A

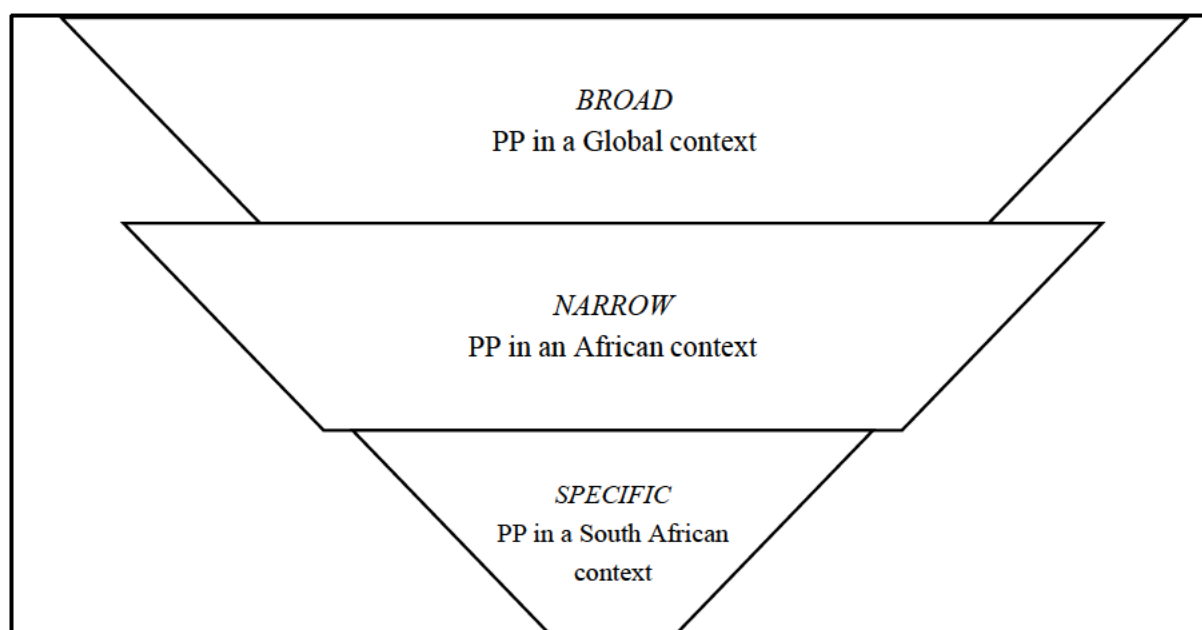
(Public Procurement: HEIs Perspective)

2.1 OVERVIEW OF PUBLIC PROCUREMENT IN HEIs: Global, Africa and South Africa

A detailed and direct introduction to the study to follow, was presented in Chapter 1 of this thesis. This chapter (Chapter 2) will present a discussion on the rudimentary crux of the study by doing an in-depth literature review that will be centred on the context of public procurement at HEIs. The literature review will start off by conversing Global, African, and South African views on research that have already been carried out within this field of study.

Studies over the last decade (2011-2021), conducted in Europe and Asia in various areas of public procurement at universities and HEIs have shown the critical role played by procurement. Studies place significance on how public procurement must be effectively managed constantly in achieving the best results and allowing for competitive advantage, cost savings, robust procurement processes, and effective leadership. Europe has one of the stronger economies in the world; policies and practices differ from that of South Africa though lessons can be learnt and optimised (StatsSA, 2018). In looking at the commencement of a globalised view, a larger understanding of the significant role played by public procurement in HEIs can be seen. Therefore the ‘funnel approach’ – as depicted in Figure 2.3, (Abubakar, Ahmad, & Baharin, 2013: p. 234) sets the tone for the discussion that will follow. In this section, the literature will begin with a broader to a specific perspective of public procurement in HEI. In discussing the broad to narrow overview of public procurement in HEIs, the literature to be discussed is related to the topic and is pertinent in deconstructing the research problem of the study.

Figure 2.1: Funnel Approach in a Literature Review



Source: (Author's Own Compilation)

2.1.1 Global Overview of Public Procurement in the HEI Sector

Thomas Estermann, is a Director of Governance, Funding and Public Policy Development at the European University Association (EUA). Together with Estermann, Pruvot, and Stoyanova (2021), they completed a report for the EUA on good practices that enhance university efficiency systems. The study looked at universities with the EUA classification. Many aspects of university systems were looked into – one such aspect was that of procurement within university systems. This study found that attention was required in the following areas:

1. Establish new guiding principles and procedures for the application of research and development.
2. Form openings to share proficiency and knowledge in a structured and justifiable way.
3. Advance a more all-inclusive and strategic approach to procurement.
4. Evaluate institutional procurement needs and related purposeful and operational requirements.
5. Maintain further professionalisation of administrative staff.

A study completed by Zhang, Zhang, Yuan, Gao, and Zhang, (2018) unpacked and looked into the government procurement audits completed at universities (which are HEI) based on big data environments. This study was conducted within Chinese universities. The problem that existed surrounded the audit data processing and analysis technology being used by government procurement in universities based on big data elaboration. It further discussed the process of university government procurement audit information and the internal auditing framework based on big data. This study endeavoured to establish the analysis models of government procurement audits that point out the association analysis and from the government procurement audit data, the cogency of these models was shown. The problems exposed from known literature (Zhang et al.: 2018: p. 458), before the study was completed, existed in the arena of government procurement at the universities are listed as follows:

1. “The information being processed from the audit data process is low of the actual audit work completed”, (Zhang et al.: 2018: p. 458) – meaning that effect of poor quality data impacts the university’s procurement performance and profits.
2. The arrangement of the audit data is complex and varies; there are structured data, semi-structured data, and unstructured data. There necessitates a need to standardise complex and varied audit data.
3. There is an illogicality between the gradual and steady increase of university projects and the lack of professional auditors. A situation becoming serious to government procurement audits.
4. The traditional novel methods and thinking of auditing requires much change. It requires adaptation to the working mode of audits with online financial capabilities.

In review, these irregularities will undeniably hinder the progress of the development of government procurement in the universities. Thus, the need to advance and expand the auditing of government procurement in promoting standardised regulated management of university government procurement. The study’s findings found that audit inefficiencies could become efficient by making use of improved computer audit technologies in the big data environment of government procurement. An improved procurement system will lead to effective levels of management. The government will do well by beginning to construct audit data analysis models.

In 2018, the European University Association compiled a comprehensive comparative analysis of public procurement frameworks and practices with specific reference to universities in Portugal and a few selected European Union university member states and university hospitals. Insightful and relevant recommendations were put forward from this report not just for public procurement at universities but for the public sector of Portugal as well. An aspect of further research looked at how the gap needs to be addressed along the lines of evaluation and monitoring of the public procurement system in finding the right degree of centralisation and decentralisation of the system through research and development (European University Association Report, 2018).

A study conducted by Jaggaer in 2017, (Consulting Firm) looked into how universities could optimise public procurement processes with innovation. The findings of the study revealed the influence played by that of technological innovation in being able to support lean work processes and to effectively manage ‘big data’ in an original way that is stirred towards benefitting the university. Streamlined procurement processes should be influenced by technological tools which will allow for greater efficiency. Central/Chief procurement officers need to steer processes that encourage maximum work efficiency from their teams and they should be strategic partners, alter outdated work processes and policies and foster strong customer relationship management with their suppliers. Information on the target population was not defined by this study. Sustainability in procurement has become a relatively growing recognition associated with both public and private procurement. Sustainable procurement over the years has gained increased momentum in organisational corporate social responsibility and sustainability programmes and has proven to be of significant value to that of caring for the environment and more so for responsible supplier purchases in the area of procurement.

Young, Negpal, and Adams (2016) conducted a qualitative study in selected Australian and United Kingdom universities through selected focus groups (5) and thereafter through in-depth interviews (5). Suggestions for aspects of future research expressed were: to further investigate whether sustainability concerns included university public procurement processes, policies, and supplier practices, and if a sizeably larger study could be conducted to produce more generalised findings in terms of a mixed methods approach, including all university procurement stakeholders, and lastly, more literature could be included, in particular reference literature centred around social issues (unfairness, dishonesty, bribery, and health and safety).

2.1.2 African Overview of Public Procurement in the HEI Sector

Awoke and Singh, (2020) conducted a study that researched the factors affecting the functioning of public procurement in public universities in Ethiopia. Through suggested research (Dea, 2016: p. 26), it was identified that in public organisations, the main source of a procurement budget is derived from taxpayers in a given country. In particular, HEIs in Ethiopia attain the total procurement budget from the government. As specified by Dea (2016: p. 27), in Ethiopia forty percent of the total education procurement budget goes to public universities. Public universities have the greater part in this facet. HEIs in Ethiopia have had procurement processes. Thereby awakening the reason for this study. This study selected three hundred and fifty-one (351) participants from nine public HEIs in Ethiopia. The participants were selected on the elements of the relationship shared with public procurement employees from top, middle to lower levels (precisely procurement employees, internal auditors, and procurement and audit committee employers – within the wider public sector of Ethiopia not just within the HEIs). The findings of the study revealed a gap for further research that should concentrate only on HEIs within its context, as the implications of the findings were broad and incorporated other government sectors of Ethiopia. There appeared to be a lack of technological interventions in the procurement function; however, the concentration of this focused largely on the management of suppliers and not the entire procurement system within HEIs (Awoke & Singh, 2020: p. 2101). In addition, this purports the need for a study to be completed on public procurement system challenges at selected higher education institutions. Where the focus is highlighted and zoned into the public procurement system itself, unpacking from within. In the same year, a new study in Ethiopia by Abraham and Tarekegn, (2020) focused on determining the factors of the effectiveness of centralised public procurement. In this study, selected higher public education institutions as well as Public property procurement and Disposal Service (PPPDSA) team leaders – at federal level were chosen. This study looked deeper into the returning of defective goods, procurement orders, and the national guideline of public procurement in Ethiopia. Whilst the findings discussed are beneficial to improving the current centralised procurement system, further research from the study is apparent and required. The PPPDSA is a public procuring entity in Ethiopia and not an entity used solely by the HEI sector, this leaves a question of where the focus lay. Was it clear and is centralised procurement the only solution to understanding the distresses of the procurement system?

Moving over to Southwest Nigeria, Bamidele, Mosaku and Fagbenle (2019) conducted a study into the causes of public procurement non-compliance with the Public Procurement Act of 2007 amongst public HEIs. In particular, the focus of the study was centred on the examination of the causes of non-compliance with the Public Procurement Act of 2007 in the procurement of building projects in all public HEIs (forty-four HEIs - 44) in Southwest Nigeria. The targeted population was made up of procurement officers who completed a structured questionnaire of the given HEIs. Once completed, the outcomes of the study revealed that procurement officers require the correct educational and professional qualifications in procurement and a comprehensive understanding of the Public Procurement Act of 2007; some staff present insufficient work experience within the profession; engineers and builders were found to be more familiar with the Act and its fundamentals and the higher the rank of the procurement officers the greater the awareness and understanding of non-compliance with the Public Procurement Act of 2007. The findings of this study strengthen the further need for the study into the holistic understanding of public procurement system challenges at higher education institutions.

Remaining in Africa, in Kenya, many public HEIs and universities have been looked into as cases of irregular probing deals of public procurement. Some universities are under investigation for irregular deals of over US\$30 million causing huge concerns for the country in cases of financial impropriety, showing the negative state of how universities are run as well as poor financial management. In a few cases some suppliers failed to deliver, and in other cases, delivered inferior equipment. A quantitative study conducted by Nyakundi and Muturi (2017) looked into the effects of compliance with public procurement regulations on the performance of procurement functions at Kisii University. With the core focus of the study being on compliance and public procurement regulations, a gap in literature is evident in that one core aspect of public procurement was focused on and analysed quantitatively only. This study was restricted to compliance, specifically paying attention to the Public Procurement Oversight Authority (PPOA). E-Procurement is the use and implementation of technology in processes, services, and goods of procurement. Being an online system that can be used by suppliers, e-Procurement caters for the proficient assimilation of supply chains and the effective management flow of tracking and records for faster data acquisition (Asare & Prempeh, 2017: p.1). According to the Chartered Institute of Purchasing and Supply (CIPS, 2013), electronic systems have become a necessary feature in the business world of the 21st

century and if organisations want to aspire to global standards they would need to move in the direction of bringing together effective technological networks.

In 2017, Asare and Prempeh carried out a study looking into the factors that influence the implementation of e-Procurement in technical universities in Ghana. In assessing the elements of implementing e-Procurement, the study put forward aspects of further research. The study was limited to technical universities in Ghana and affirmed that further related studies should be carried out in other public higher education institutions/universities. An expansion of elements looked at in terms of leadership styles are leadership of suppliers and capacity constraints including in larger sample sizes. Research undertaken on prospects and challenges of procurement performance measures by Anane and Kwarteng (2019) in selected technical universities of Ghana suggested aspects of further research including that this study be extended to many more universities that are making use of public procurement guidelines that are linked to governmental laws and blueprints. A second suggestion is that the entire supply chain be looked at in terms of suppliers (roles to be assessed) and their impacts on public institutions/universities.

2.1.3 South African Overview of Public Procurement in the HEI Sector

The South African economy has not grown at the level of expectation as predicted, with the financial fiscus continuing to shrink; public organisations are still expected to make certain that they can deliver at present or higher levels of expectations, and this includes HEIs. Higher education in South Africa will need to increase student enrolment levels from 950 000 in 2010 to 1.6 million by 2030, as per the directive of the National Development Plan. It has been noted that by managing their indirect and direct spending, HEIs will be able to look into effective ways of increasing their enrolment numbers (PwC Report, 2015: p. 1). The procurement of goods and services through the practice of Supply Chain Management (SCM) will come to be of high importance to HEIs in trying to achieve this directive in an evolving, challenging environment. In trying to achieve this directive, institutions must make sure that they have effective policies and procedures in place, and compliance thereof is adhered to following these policies and procedures which will push towards value for money. According to PwC (PwC Report, 2015: p. 11), through research conducted it can be noted that the Public Finance Management Act (PFMA) and Preferential Procurement Policy Framework Act (PPPFA)

(revised context) of South Africa propose one of the utmost vigorous and strong structures in the world within the context of procurement. The only flaw that PWC has noted again through investigative research is that there is a lack of proper implementation of this strong structure.

HEIs do not have to comply with the PFMA, and this results in these institutions being able to achieve their long-term goals. In many countries across the world both private and public organisations are starting to see the imperative and strategic importance of not only SCM but also the role played by procurement in the supply chain of an organisation in its daily value chain processes. The most important intention of any university worldwide is to favourably draw students, upkeep and support them in their learning process and ultimately provide those with the best education service so that they will go on to become industrious members of society (Dlamini & Ambe, 2012: p. 278).

A study was conducted by Dlamini (2016), with particular attention to determining procurement best practices in comprehensive universities in South Africa. Comprehensive universities have a special and unique history in South Africa in that they were established to foster career-orientated qualifications and improve efficiency in the way research is produced in diversity. Having been limited to a qualitative study of only 10 participants interviewed from three comprehensive universities, a need arises in that the study recommended further studies to look into public procurement practices from a mixed methods approach in producing more relevant rich data. The gap of research centred within an investigation of a public procurement system at an HEI exists, and thus a further need for this study.

SCM plays an important role in producing and continuing the upstream progression in HEIs. SCM acts as an instrument to further expedite the proper usage of governance and funds. This subject is being accentuated by many organisations, both private and public, which are now moving SCM to the extent whereby reporting lines are either moving to the board, or in the case of HEIs, to the council. As in the case of the selected HEIs, the council rests as the highest authority and approves the procurement policy. Higher education in South Africa needs to move towards progressing and elevating the supply chain units of operations from only a 'procurement' function to a strategic SCM asset function. Further, this must then be supported by vigorous and strong structures of policies and procedures, effective systems, and capabilities (KPMG Case Study, 2016: p. 3).

At a neighbouring HEI in KwaZulu-Natal between 2016 and 2017, an investigation was conducted into a public procurement controversy involving senior management officials of the institution. It was found that irregular procurement activities and practices were taking place, and there was no proper tender procurement process. This further cements the need for an evaluative study of a procurement system within higher education (Dlamini, 2018: p. 1).

The primary objective of the Zondo Commission is to facilitate the prosecution of those implicated in state capture, corruption, and fraud. Additionally, it aims to provide a comprehensive set of recommendations to prevent the reoccurrence of state capture in the future (Government Gazette, 2020). However, instances of corruption continue to emerge in higher education institutions (HEIs).

In 2021, a study concluded by Kock, investigated the factors influencing the automation of procurement processes at HEIs in South Africa. This was a quantitative study, carried out on South African HEI employees. The Purchasing Consortium of Southern Africa (PURCO SA) distributed the questionnaires to all HEIs who were members of PURCO – the target population was procurement staff. Nigeria's HEIs were also included in this study as part of a PURCO member. A poor response rate of a mere twenty-seven percent (27%) completed the questionnaires. As the focus of the study only looked at a small divide/portion of the procurement operations, that of procurement automation – the findings generated are minimal into the core procurement challenges that exist within HEIs in South Africa. As the study focused on an aspect of HEI procurement and not in its entirety. This study emphasised the need for further research to be conducted closely into the capability of procurement systems and electronic procurement. Thereby intensifying the gap in the holistic challenges experienced by HEIs in South Africa (Kock, 2021).

At a different nearby HEI institution in KwaZulu-Natal, procurement corruption was sighted. At this institution, in 2021 a dubious construction deal was identified. The institution then assured the government that all was completed with the procurement jurisdictions of the institutions and far procurement processes were used to award tender contracts (Online Tenders, 2021). A year later (2022), at the same institution, another procurement-related matter of corruption surfaced. This time, an invalid security contract was issued and was found to be unconstitutional. The matter is still going on and being handled by the law (Broughton, 2022).

Thus, according to Mathiba (2021: p. 579), South Africa is well known for having a strong and comprehensive anti-corruption law system. However, because of the government's hesitation and sluggishness in enforcing this legal structure, it often fails. The insufficient resilience of anti-corruption organisations and institutions, which are often accused of caving in to political pressures, is another factor contributing to this failure.

The discussion encapsulated the findings completed by various studies conducted between the periods of 2016 to 2022, within the last decade of 2011 to 2022. The apparent need for this funnel discussion from a Global, African and South African perspective was necessary for understanding the requirements for further research required around the context of public procurement systems in HEIs. The subtleties in the global world and the emphasis being placed on the role that education plays in modern societies from a well-informed economy, have compelled public HEIs to follow winning public procurement practices and processes. Public HEIs are constantly in a state of having to do more to provide quality education and produce operational productivity (Songok, 2018: p. 15).

2.2 ROLE OF PURCO IN SOUTH AFRICAN HEIs

The Purchasing Consortium of Southern Africa (PURCO) SA is a non-profit consortium of procurement that has been specifically created for HEIs in South Africa and Namibia. The four selected HEIs of this study (DUT, MUT, UKZN, and UNIZULU) are affiliated members of PURCO South Africa. At the end of 2021, PURCO received a growing membership that incorporated sixty-six HEIs inclusive of South African and Namibian public universities. PURCO's allied members are inclusive of allied members such as the *Council for Scientific and Industrial Research* (CSIR), National Research Foundation (NRF), the South African Bureau of Standards (SABS), etc. Since PURCO's commencement to date, it has distributed around R1, 7 Billion Rand of savings and discounts to HEIs in South Africa and Namibia. Their fundamental offering is their capacity to effectively manage tender processes and negotiate value-adding contracts through the process of the bulk buying influence of PURCO's large membership. A range of additional services specifically tailored for Higher Education procurement bolsters our contracts and tendering services. Additionally, PURQ is PURCO's wholly owned academic information stage, which offers a centralised repository of 75% of the South African HEI academic information and PURCO's South African consultancy service

that distributes strategic and task precise detail interventions as well as operational and executive staff deployments. For more than forty (40) years, PURCO South Africa has enabled collaboration initiatives between South African HEIs, negotiated national procurement contracts (worth Billions of Rands), managed multifaceted contracts for HEIs, stimulated knowledge sharing, and delivered noteworthy savings to the HEI sector and its students (Purco, 2021). PURCO South Africa is steadfast in its commitment to the principles of collaboration with all its members in trying to save time and money through proficient collaborative procurement. In doing this, the aim is to further strengthen and build partnerships with all stakeholders in the HEI sector of South Africa. PURCO South Africa endeavours to strive to be a leading centre of procurement excellence. In doing this, best practices in an ethical mode will always be maintained as well as open and transparent ways to support higher education in South Africa (Purco, 2021).

As per the PURCO SA's Annual Report (2021), South Africa has had to withstand many turbulent crises in the last six (6) years, beginning with the commencement of the “fees must fall campaign” to the COVID pandemic. These were significant constraints on the progress of HEIs in all sectors of its operations. Thus the Annual Report (2021) put forward three (3) strategic value proposition annotations for all of its South African member HEIs:

1. To closely look at their collaboration and compliance as it is the immediate value that members can derive from existing national agreements and individual (as per HEI-based) procurement policies. It has been found that members are missing out on noteworthy savings on collaborative contracts for up to ninety percent of their non-essential (discretionary) spending.
2. With regards to transparency and integrity, PURCO SA that the rising levels of state public procurement corruption over a six (6) year period (2015 to 2021) and weak public procurement practices have resulted in PURCO SA's HEI members not completely effectively making use of their cost-saving and income-generating amenities. According to the corruption perceptions index for the public sector, South Africa (2021) has scored fifty- six (56) points. This scale displays that corruption has risen and increased in South Africa, in 2021 South Africa was ranked seventh (70th) while it shows a steady average. In the long term, there has been a substantial rise in the last five (5) years (World Data.Info).

3. The digital future of HEIs is measured – PURCO SA comments that it will strive to assist all its members in making the digital transition for their procurement tasks. As well as the hybrid/remote learning model, universities will require assistance to follow this model; procurement will require reliable suppliers.

South African universities are required to make a determined effort to become financially stable. However, given some of the restraints the government faces, it seems bleak that possible government grants may remain unchanged or even be reduced in the years ahead. Thereby the expectation will require universities to search and explore other sources of revenue and further implement cost control measures (PWC, 2022).

2.3 EXPLORATION OF UNIVERSITIES IN SOUTH AFRICA’S HIGHER EDUCATION

In this section of the literature review, the discussion will be centred on exploring universities as part of HEIs in South Africa. A detailed overview will be presented of their background, overview, categories, and governance.

2.3.1 Background of HEIs in South Africa

The South African university history has been the realm of much honour affiliated to it, in that universities of learning were placed in a favourable light which boosted the growth and achievement of this country. Post-apartheid in South Africa dispelled this favourable light of the racial divide that was apparent at universities in South Africa, which prompted the need for changes at South African universities (Bronwyn, 2016: p. 58). After 1994 with the revisions made to tertiary education and its policies, universities, and technikons became known as *higher education institutions* (Lefa, 2014: p. 1). HEIs are sites where students and academics come together to exchange knowledge and acumen through levels of communication and transmission of thought. This process influences the contribution of inquiry of further learning, and research, thereby perfecting the learning process to be covered into an acquired skill that allows students to move into professions and raise a standard of living. To a great extent, the existence of universities is based on principles of teaching, research, and academic governance, as cited by Archer (2017: p. 2). The call for higher education in the twenty-first century is

becoming more noticeable and complex (Wangenge-Ouma & Langa, 2010: p. 751). This call for growth can be attributed to the acknowledgment by governments that higher education plays an essential role in socio-economic development (Boulton & Lucas, 2011: p. 2508). The domination of market forces, for example: the development of advances in communication mediums, rapid technological progress, changing dynamics of socio-economic patterns, the international development of higher education, and institutional demands on higher education have initiated many changes in higher education globally (Lindström, Hashemi, Háhn, Palviainen, Asatiani & Kedra, 2021: p. 82). With regard to technological progress, Mpungose (2020: p. 3) asserts that contained by a South African context, HEIs need to invest in upgrading resources or view the digital divide growing further. In developed and established countries, higher education has substantially transformed, and in doing so has pushed developing countries to allow themselves to follow these changes and conduct a self-analysis or face the peril of becoming inapt. These changes however present both opportunities and challenges and intense cooperation on all fronts (Lindström, Hashemi, Háhn, Palviainen, Asatiani & Kedra, 2021: p. 83).

As discussed in the previous paragraph, these changes have impacted the operations of HEIs such that new practices, levels of integrity, and new philosophies from lessons within the private sector, that of: managerialism and marketisation in gaining competitive advantage (Philpott, Dooley, O'Reilly & Lupton, 2011: p. 168). The adoption of the use of private sector trends is intended at supporting innovation in higher education, boosting economic developments as well as contributing to the knowledge economy (Philpott, Dooley, O'Reilly & Lupton, 2011: p. 169). As per Walton and Galea (2005: p. 152), this practice is known as 'corporate university governance. There have been some universities in Europe, Australia, and the United States of America that have readapted their HEIs to include innovative research, technological leadership, and entrepreneurship and adapted virtual methods of teaching and learning as a way to increase the pace of knowledge transfer in the professional work of work and society. This in turn influences the positive managerial approach in HEIs that raise awareness of how to gain competitive advantage (Fernández, Castro, Duran & Làzaro, 2022: p. 598-599).

2.3.2 An Overview of South African HEIs

More than two (2) decades ago, South Africa embarked into the era of democracy. The elation was strengthened by the lengthy work that was set to follow in the major rebuilding of social institutions of the country and to address the vast challenges of disparity, inequity, and poverty for the need for economic growth. Since the departure of the apartheid ruling, the South African higher education sector has viewed many changes; these changes were difficult to incorporate as of the difficult imprints left behind by the previous order of inequality. The higher education constituents' institutions' practices and policies went through significant transformative changes. The newly elected first democratic government in the history of South Africa created a National Commission on Higher Education (NCHE), which focused specifically on developing a programme for the transformation of this sector in the country. By the year, 1997 crucial higher education policies and legislation were in place by the commission, which then supported the programme for the transformation of higher education to take place (Council on Higher Education, 2007: p. 1).

South Africa is seen as a developing country with a population of about 60.6 million people (Statistics SA, 2022). The political background of South Africa experienced fundamental and far-reaching changes when the democratic government was established in 1994 (Bitzer, 2009: p. 3). Copious transformations were put into place to address the inequalities shaped by the apartheid government (Badat, 2010: p. 4). HEIs were not exempted from changes and were transposed to be allocated for the new order of changes within the public sector of the country. The absent sections included, the definition, purpose, and goals of higher education, policy design, structures of governance, academic funding programmes, quality assurance, laws, and regulations of higher education (Badat, 2010: p. 4).

The National Ministry of Education regulates higher education in South Africa; is governed by the Department of Higher Education and Training (DHET), led by Dr. Blade Nzimande as the Minister. The goal of the DHET is to develop proficient, suitably educated citizens, who are able to enter into a viable, diversified and knowledge-producing national and international economy that completes the developmental objectives of the country (DHET – National Government of South Africa, 2022). Higher education and training plays a fundamental role in resolving socio-economic problems and prompting developments for the country to be able to

thrive and grow in the long term. In 2000, the Size and Shape report by the Council of Higher Education (CHE), specified that higher education has a pivotal role to play in knowledge creation, producing committed and astute graduates and injecting into the positive regeneration within the African continent. In South Africa, higher education remains critical to the progress of updated projects around transformation and regeneration. Not only is higher education imperative in a country's upward progression, but also seen as an indicator in democratic societies by being able to deliberate, reflect and act. Thus, it is appropriate to take a deeper look into higher education, analysing its shortcoming, achievements, and room for improvement. Therefore, HEIs in South Africa are at the core middle of the government's agenda as specified in the Higher Education Act 101 of 1997.

2.3.3 Categories of HEIs in South Africa

In South Africa, public universities are categorised into three (3) types, namely:

- 1) ***Traditional University*** – these universities primarily offer theoretical learning degrees
- 2) ***Comprehensive University*** – these universities offer a combination of theoretical learning and vocational degrees/diplomas
- 3) ***Universities of Technology*** – these universities offer programmes that lead to technical/technology degrees, diplomas and certificates. The aim of these universities as per their created structure is to prepare learners for a specific occupation. Universities of technology deliver courses in applied fields – such as engineering, technology, business, health sciences, design, and the performing arts.

Each of the selected HEIs of this study falls into a different category, within the university of technology classification, within the traditional university classification, and falls within the comprehensive university classification. The exploration of the public procurement system and operations of different HEI categories shall significantly contribute to public procurement research of HEIs in South Africa. To date studies that have been conducted in public procurement focus on an aspect of procurement within the HEIs, with a classification mix of the different HEIs this study examines and explores the public procurement system in its entirety allowing for all operations of procurement to be looked into within the public procurement system.

2.3.4 HEI and University Governance in South Africa

All South African public universities are governed by structures of the Higher Education Act, No. 101 of 1997. There were amended institutional laws and rules amended in 1999, 2000, and 2001 (Higher Education Act – Department of Higher Education and Training). HEIs fall within the public sector and are regarded as autonomous organs of the state (that means reporting to the councils rather than the government) and thus it is so that their procurement is embedded in the Constitution of the country (Mthembu, 2009: p. 9). Divala (2009: p. 1133) describes autonomy as measurements of sensible individuals to make well-versed decisions without withdrawing their responsibilities and duties to society at any given time. The concept can further be as or related to as self-governance. Conversely, De Silva (2010: p. 5) states that it is important to note that HEIs cannot and should not have unlimited autonomy, as they must be able to meet the national goals of delivering quality education and conduct innovative research. Therefore, there is a clash in the way that autonomy is conveyed in higher education in South Africa. Seepe, (2017: p. 123) continues that the control of HEIs is indicative of how authority is balanced and coordinated between all stakeholders. This further impacts how the flow of authority takes place, thus HEIs must adhere to governance guidelines.

According to Rao (2019), the concept of good governance encompasses more than only the effectiveness of performance inside established governmental processes and social and economic organisations. Moreover, according to Rao (2019), the achievement of effective governance requires not only structural modifications, but also a shift in the collective psyche of individuals and an expansion of the parameters within which policies are formulated. The definition of good governance extends beyond the mere provision of government tasks and services, including a broader range of factors. Additionally, it encompasses the participation of civil society organisations, political parties, and other fundamental components of the State.

Once the democratic government came into power in South Africa in 1994, the transformation of higher education began. The National Council on Higher Education (NCHE) was created in 1995 to remove the inequalities of the past government, as well as to bring about change by adopting modern ideals to South African HEI structures in striving to meet international standards (Cloete, Maassen, Fehnel, Moja, Gibbon and Perold, 2007: p. 8). Since the creation of Higher Education in 1997, fourteen (14) independent assessor investigations were carried

out; these investigations specifically looked into the governance and administration of the reported universities in South Africa. An alarming concern was raised in the cases of four (4) universities where investigations were required; these investigations were then conducted more than once. These investigations lead to councils being disintegrated, thereby leading these institutions under supervision in terms of the governance regulations of the Higher Education Act (Department of Higher Education and Training, 2017: p. 5).

South African universities are in existence for a goal that is not different from any other university around the globe. As per Cloete & Maasen, (2012: p. 8) it is implicit that globally, universities exist for effective teaching and transfer of skills into the professional workforce and research. At varied intervals, it has been claimed that the role of an African university is not clearly expressed in an African forum, for the reason that it has been uncertain in its role to complete academic projects and activities (Jordaan, Heerden, & Jordaan, 2014: p. 1272). The former United States secretary general of State Kofi Annan once stated: *“The University must become a primary tool for Africa’s development in the new century. Universities can help develop African expertise; they can enhance the analysis of African problems; strengthen domestic institutions; serve as model environment for the practice of good governance, conflict resolution and respect for human rights, and enable African academics to play an active part in the global community of scholars”* (Bloom, Canning, & Chan, 2006: p. 2). As per Mouton, Louw and Strydom (2013), a certain amount of council members seldom understand their role, in which illustration they often act unsuitably and detrimentally towards the running of the universities. There have been many occurrences in South Africa where council members have somewhat differed from university leadership. De la Rey (2015: p. 3) expresses that skill, knowledge, and financial acumen are imperative for university council members if governance at universities is to be accomplished.

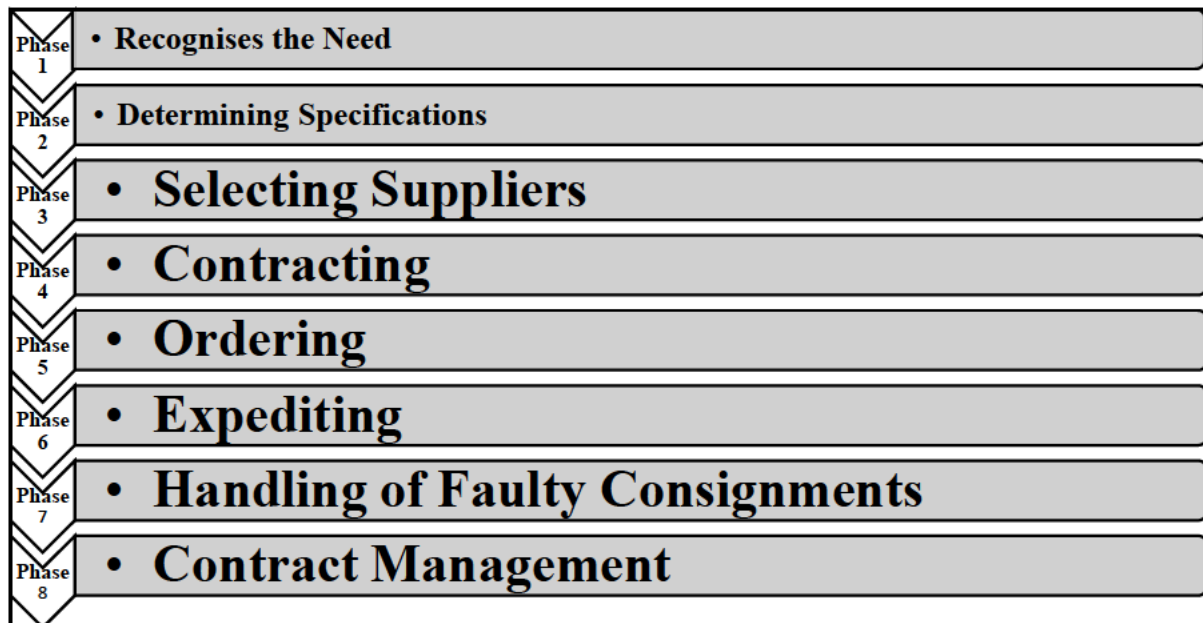
The outlook in line with international practice, the governance of universities takes the shape of a bilateral system in which crucial accountability is shared between members of council and senate. The efforts of these governance bodies are supported by the twofold principles of institutional autonomy and academic freedom. The Higher Education Act encompasses provisions that outline the relationship between councils and senates (Department of Higher Education and Training, 2014). Hence, this study aims to identify the public procurement systematic challenges being experienced at the selected HEIs. It further aims to ascertain

whether the public procurement policies and principles of the HEIs are in compliance with the operations of *agility*, *flexibility* and *responsiveness* in their daily tasks. Moreover, to what extent does the public procurement system performance of environmental and organisational contexts being used in the procurement systems of the HEIs? To follow the procurement process shall be discussed within procurement systems.

2.4 A PROCUREMENT PROCESS

The process and measures included in the procurement of supplies for an organisation vary from one to the other. The process differs from simple to complex and similarly, they differ in terms of experience and sales volume (Heckman, 2020: p. 368). The procurement process cycle presents the steps that are involved when sourcing services and materials. Hence the steps in the steps/phases in the procurement cycle provide a blueprint that should be followed for the effective operational implementation of activities by procurement staff for the completion of the procurement function's objectives (Hugo & Badenhorst-Weiss, 2011: p. 12). The phases in the procurement cycle must be intended for and aimed in line with the comprehensive policy and strategy of the procurement function. It must be well coordinated and expressed in sync with all other functions in the organisation, for the purpose of collaboration and compliance resolves (Johnson & Flynn, 2015: p. 78). Figure 2.4 displays the phases of a procurement process.

Figure 2.2: Phases of a Procurement Process



(Source: Adapted from: Hugo & Badenhorst-Weiss, 2011: p. 12)

Figure 2.4 points out the phases of the procurement function in its process. It must be noted that in some organisations Phases 1 and 8 are not performed solely by the procurement function. A few steps to the phases have been excluded as they fall outside of the range of the procurement process; these are for example, receipts, inspections, distributions, and payments that do not fall within the procurement function. The procurement process ought to be seen for its proficiency and value. The phases of the procurement cycle are discussed in detail in the sub-section below:

Phase 1: Recognition of the Need

Mostly the need for materials or services is created by the operations department or the inventory control section. The user which is often the internal customer of the procurement function sends out a message of the need to the procurement function through a purchase requisition or an electronic catalogue (materials requirements planning - MRP) (Burt, Petcavage & Pinkerton, 2010: p. 21). Organisations that are stuck and confined to buying would not make use of electronic catalogues, as they would be processing pages of paper, whereas

those organisations that have terminated paper processing have moved over to online order directly to the supplier – by this means saving costs and time.

Phase 2: Determining Specifications

In this phase of the procurement process cycle, specifications are defined to precisely stipulate the requirements that the supplier must meet to circumvent vague and uncertain descriptions. Determining specifications moreover helps to spell out the user's acceptance standards. The procurement function would then require cross-functional teams to be created with specified expertise to assess technical, functional and performance and standards requirements (Sollish & Semanik, 2012: p. 29). In this phase, tactical purchasing would usually accept specifications from the user and process them with minimal input, accepting them as is. As tactical purchasing is merely carrying out routine administrative tasks on a reactive basis (Monczka, Handfield, Guinipero, & Patterson, 2016: p. 133).

Phase 3: Selecting Suppliers

Through this phase, the procurement function categorises and finds a supplier/s with the lowest price. Though the procurement's prominence will be based on understanding the marketplace as to where materials and services can be sourced from, to know their suppliers well and to carry out supplier visits so that the organisation can be at ease with the choice of the supplier being made. The background before the choice of a supplier is made, is whereby the procurement staff carry out market research, bidding and negotiating, determining methods of contracts, and selecting suppliers based on set criteria that have been determined. The existing procurement systems require mutual benefits between a supplier and a buyer (of an organisation), thus a detailed assessment of the technical and commercial features is crucial. Thereafter the best and most appropriate supplier is selected (Badenhorst-Weiss, Cilliers, Dlamini, & Ambe, 2018: p. 53).

Phase 4: Contracting

Phase four encompasses the drawing up of a contract or purchase agreement, this must become a legally binding agreement. The subject and information pertained in the contract must visibly stipulate the legal and commercial terminologies and conditions set out. Mutually the supplier and procurement official must agree on the quantity, quality, price, and methods of delivery, delivery dates, and other important specifications. Contemporary organisations make use of computerised systems to complete this process whilst traditional organisations continue to make use of paper-based systems for this process (Handfield, Monczka, Guinipero, & Patterson, 2011: p. 65).

Phase 5: Ordering

Ordering involves allocating a purchase order (PO) as an offer to the supplier who has qualified. The supplier in return will concede receipt of the PO and thereafter notify whether they accept or reject the offer in writing formally. Approving availability of stock, delivery dates, and delivery times (Wisner, Tan, & Leong, 2012: p. 45).

Phase 6: Expediting and Evaluation

In this phase, the accountability of the procurement function does not solely rest with the supplier. Certain duly experienced procurement staff are usually assigned to do supplier follow-ups. The reason this is required is to ensure that delivery dates are met timeously, should there be challenges, the designated procurement staff will be able to follow these up through different forms of communication (telephonically, MS teams, emails, etc.). Expediting is an administrative task, though information technology can hugely reduce the load of the challenges on the procurement function, as information can be tracked electronically and instantly (Hugo & Badenhorst-Weiss, 2011: p. 54).

Phase 7: Handling Faulty Consignments

The handling of faulty assignments is usually completed outside of the procurement function and authority. However, procurement operations must be involved as this function initiates the orders and communicates with the suppliers if there are any challenges and faulty consignments.

Phase 8: Contract Management

In this last phase, the contract management requires evaluation and to be documented for upcoming use should the need arise. Recommendations for improvement will be noted and made accordingly.

In the section to follow a detailed outline of the procurement process of the selected HEIs shall be discussed. The discussion will provide a comprehensive understanding of the regular procurement process procedures and operations followed at these selected HEIs.

2.4.1 Procurement Process of HEI 1

The process of acquiring goods and services for the university is managed by a centralised system at HEI. All employees who work in the procurement department are located inside the department's primary structures. The procurement department is led by one Manager and an additional senior Director who work together to make decisions. One senior procurement officer, seven procurement officers, and two admin assistants. The Director reports directly to the Chief Financial Officer (CFO). There are a total of six faculties (Faculty of Accounting and Informatics, Faculty of Applied Sciences, Faculty of Arts and Design, Faculty of Engineering and Built Environment, Faculty of Health Sciences, and Faculty of Management Sciences) and one business school housed within this institution. All of the purchasers who work at the centralised procurement office are in charge of a certain department or division. After then, the buyer who has been assigned to a certain faculty will be in charge of the obligations associated with procurement for that particular faculty.

In addition to this, at HEI 1, departments throughout the university have staff members who are responsible for obtaining quotations, and approved purchase requisitions are forwarded to procurement for order placement via the Finance Officers. Quotes are only obtained by Procurement Officers on occasion, and only when they are specifically requested. When making purchases that are more than R1 million minus VAT, procurement officers will additionally solicit quotations and go through a tender procedure.

After a period of one year, it is common practice to rotate buyers so that they take up positions in a new faculty. This occurs once every few months. Customers that shop in this manner enjoy experience across all of their senses. Because being an expert in a subject takes time, some purchasers may experience feelings of inadequacy throughout the rotation process because they are not necessarily fast learners. Additionally, procurement for the whole institution is handled inside the centralised framework. According to Kanepejs and Kirikova (2018: p. 218), the practice of centralisation in procurement is often considered as a way both of obtaining better levels of efficiency and of reducing the overall level of complexity. Having said that, they further state that in their experience, this is not always the case. Therefore, staff may not have enough time to effectively understand the procurement details if they are constantly rotated between different procurement specifics per faculty.

2.4.2 Procurement Process of HEI 2

HEI 2 operates in a centralised procurement system, which has a further devolved (decentralised) college structure. The Centralised Procurement Office is referred to as 'CPO'. Procurement and finance have a joint departmental structure and function as the finance division/Department. Finance and procurement incorporate ranges of budget planning, implementation, and control, together with the different operational avenues, which include procurement, creditors, assets, stores and insurance, salaries, and financial systems support. Procurement thus forms part of the finance department. A deputy directorate manages the operations avenue. The financial planning services also include income generation activities whereby departments generate additional resources through donor funding that is non-research as well as short courses or self-funded teaching programmes.

The devolved college structure of the four colleges at HEI 2, namely Agriculture, Engineering and Science, Health Sciences, Humanities and Law and Management Studies, Research and Student Services, each complete their procurement policies, orders, and daily activities of procurement and finance within their college structures. These procurement staff members, called “buyers,” report directly to the college finance manager, who makes the ultimate decisions of the day and concerning all procurement processes. Buyers get the quotes as per the requests sent to them, they then load the request onto the system, the finance manager gives the ultimate decision, and the buyer then proceeds to make the purchase. No contact is made with the CPO in terms of authority to move ahead and waiting for the go-ahead from the CPO. This devolved structure means that decisions are made at the college level. The underlying reason for this (2012-2013) was to help speed up elements of an efficient procurement process and control. Student Support and Services is the fifth structure, but is not recognised as a college. It runs separately from the college structure devolved process. At the devolved college structure level, mini tenders from R500 000 to R5 million are completed here.

2.4.3 Procurement Process of HEI 3

At HEI 3, there is a centralised procurement process, however, it falls within the SCM division. Thus, the department is called SCM. All employees with the title of ‘procurement officers’ are buyers, each buyer is designated to a given portfolio, either within a faculty portfolio or within a university department. In the centralised structure, there are five procurement officers, one procurement manager who then reports to the supply chain Director. The Director reports directly to the DVC of the university. All other general titles fall within the larger SCM role of this division.

Procurement is the procedure at HEI 3 that is responsible for the creation, management, and fulfilment of contracts. In most cases, the direct purchase of products and services that are standard, well-defined, and easily scoped and specified is required in order to fulfil the requirements of the procurement of goods and services for general consumption. In most cases, the process begins with the formulation of a demand, which is followed by the preparation of a specification. There is an instant option available in terms of the cost of products and services that are capable of being paid for upon delivery and which fulfil the standards that have been set.

Following the adoption of the University's strategic plan and budget, the beginning of each fiscal year should be used to prepare the university's procurement activities. After the acceptance of the budget, the Supply Chain Management unit is required to provide a blank template for a Procurement Plan that is to be filled up by each department within the University. The development of procurement plans will then take place in isolation; nevertheless, they will need to be included in the Annual Performance Plans of the University as well as other functional strategies. During the process of developing procurement strategies, the SCM unit collaborates closely with each individual user and business unit to carry out this role. The SCM Unit will then combine all of the procurement plans it has been given into a single, comprehensive plan for the University's procurement that takes into account the different procurement thresholds that are relevant.

2.5 PRINCIPLES OF PUBLIC PROCUREMENT IN SOUTH AFRICA

According to Lynch (2014), the procurement process starts with the introduction of a need and ends with the award of a contract and a successful process. Public procurement principles in South Africa are of: *fairness, equity, transparency, competition* and *cost-effectiveness* are seen as the basis of public procurement in South Africa and are addressed in public procurement legislation. These guiding principles were issued by the South African government (General Procurement guidelines – Republic of South Africa, n.d: p. 1) not just as a remedy of set standards of behaviours, ethics, and accountability, which is required of its public service. These standards are also a proclamation of the government's commitment to a procurement system that will contribute to the commonwealth of the country, leading to the boost of economic revenue (Bolton, 2008: p. 783).

The principles of public procurement rule how practitioners and all other official staff of public procurement conduct their line of business interactions directly or indirectly within the procurement process and in a procurement system. Procurement practitioners, buyers, and officials must ensure that a clear understanding of these five principles is effectively understood as it will then be easier for them to apply the essence of these principles to their everyday work processes, decision-making, and functional operations. Individuals who are employed at HEIs are '*public servants*', who are instrumental in becoming agents of change in terms of conduct and accountability of all they do in their working operations.

At the selected HEIs, as per their respective procurement policies, five (5) principles of public procurement apply to the context of the HEI and are followed accordingly. Whilst accountability does not form part of the five principles (pillars) of procurement, it is indeed a very critical concept with the context of public procurement and it shall be discussed. In public procurement, ***accountability*** fundamentally means that a procurement employee/official should be liable for their actions and decisions and should be able to report all workforce activities as and when the need arises with transparency (Munzhedzi, 2016: p. 2). A procurement employee/official as a public servant must be liable for any of their behaviour/s that may expose and disobey the public procurement framework and its guiding principles of practice.

These five (5) principles are ***transparency, cost-effectiveness, fairness, equity, and competitiveness*** (Bolton, 2006: p. 48; Constitution of South Africa, Section 217 [1]), discussed as follows:

Transparency - As part of good control in public procurement, openness of information must be made available to all interested parties (procurement officials/employees, contractors, stakeholders, suppliers, and service providers) in a procurement system, internally and externally. If a valid and legal reason is present as to why information cannot be made available to all interested parties, it then will be an acceptable circumstance owing to the nature of the legality and its reasons. According to Bolton (2006: p. 54), all institutions of government should have a transparent, open, and fair procurement system in place in that all interested parties are allowed and able to question any processes they may feel unsure of or unhappy about. She further states that research completed by the Public Supply Chain Management (SCM) Review (2015) expressed that this is an area that requires attention by the National Treasury (NT) and requires improvement. Particular focus was placed on tender notices and awarding of tenders as to some extent, political interference takes place in terms of the decisions in awarding tenders, how, and to whom.

Cost Effectiveness - In public procurement, procurement officials/employees must make sure that all aspects of procuring goods and services must be completed at the lowest possible price and in turn, for value for money to be derived. An effective public procurement system reflects the effective measures for creating value for money through cost-effectiveness. In the Public Supply Chain Management (SCM) Review (2015), it was noted that value must be shown in the process of procuring goods and services as it leads to cost-effectiveness. This was seen as a challenge in the South African public sector of procurement. In the Public Supply Chain Management (SCM) Review (2015), NT further commented, when organisations of the public sector are considering suppliers for their centralised database, inspection visits of these suppliers must take place as these visits place value on cost.

Fairness - Fairness in the public sector context cannot be discussed without the concept of ethics. For South Africa's public procurement to be fair, one must be ethical as well. To be fair, a procurement official must be unbiased and reasonable in decision-making. In public procurement, when all contractual parties concerned act in accordance with ethical standards, they can communicate with each other on the level of mutual trust and respect. They are further able to operate their business fairly and reasonably. All government officials within the public sector who are dealing with and linked to procurement – direct and indirect suppliers are required to:

- a. Identify and amicably deal with conflicts of interest.
- b. Deal with suppliers equally and fairly – all rules apply.
- c. There is no compromises made whilst dealing with the acceptance of gifts, hospitality or public property – all to be declared.
- d. Deliver assistance in all incidents of the elimination of fraud, corruption, and collusion (General Procurement guidelines – Republic of South Africa, n.d: p. 2).

Equity - Within the Constitution of South Africa, Section 217, 'equity' means the submission and adherence to government policies, which were considered, to advance persons/people who have been previously disadvantaged by unfair discrimination. Equity is integral to public procurement in South Africa as it certifies that the government is dedicated to economic growth and the advancement of historically disadvantaged persons. This principle of public procurement must ensure that black people and gender in ownership are critical. No public

procurement system should be functioning without the principle pillar of ‘equity’ (General Procurement guidelines – Republic of South Africa, n.d: p. 3).

Competitiveness - Competition/competitiveness in public procurement can be the outcome of the best value for money for the procurement of goods and services at public sector institutions through lower prices provided to the end-users of public services. Competition affords public sector institutions choices and bargaining power (Competition Commission, 2019: p. 4). Competitiveness provides a context of procurement laws, practices, and procedures that are transparent and available to all parties. Honesty in the procurement process is essential for competition.

The five (5) principles discussed are essential ingredients for the effective functioning of an HEI procurement system. In embracing a procurement policy and thereby implementing it, institutions must duly have an effective and efficient procurement system in place. The principles as discussed in detail cannot just apply within an institution’s policy but must be further activated in the procurement system, through daily procurement operations and tasks.

2.6 PROCUREMENT SYSTEMS

According to human resource and management theorists, an organisational structure is the core foundation of any business and organisation. Once an effective organisational structure exists it allows the business/organisation to make profits and to organise the hierarchies and divisions into a meaningful workplace function, like that of a procurement department/function.

The procurement function in organisations must have a procurement system for how work takes place. This procurement system can take any three forms of classification for how the system may work (Iloranta & Paujunen-Muhonen, 2012), namely:

- Centralisation
- Decentralisation
- Hybrid

2.6.1 A Centralised Procurement System

A centralised procurement system is a system that is controlled at the ‘main’ hub of activity; it has a central location as the ‘main’ hub for the total and entire organisation. Having a centralised procurement system helps maintain the line of activities that are taking place at the strategic and tactical levels. A centralised procurement system ensures product specialisation and controlled supplier selection while business units continue to complete all operational procurement activities (Van Weele, 2018).

2.6.2 A Decentralised Procurement System

In this kind of procurement system, all procurement activities are controlled by different divisions and business units where the point of onus and responsibilities are controlled directly by these business units and divisions. Procurement activities are controlled by business unit or divisional managers and procurement tasks are redistributed from central procurement hubs, and smaller units of raw materials and products are ordered compared to that of a centralised procurement system (Iloranta & Paujunen-Muhonen, 2012).

2.6.3 Hybrid Procurement Systems

This kind of procurement system is a combination of both centralised and decentralised procurement. When choosing a hybrid procurement system, it allows organisations to combine the ‘key’ features of centralised and decentralised procurement to create the perfect procurement fit for the organisation. Procurement activities can be either centralised from a highly broad spectrum to a vastly devolved system. In hybrid procurement, the central structure of activities is both centralised (management control) and decentralised (operational business units) allowing procurement to be effectively coordinated and for the free movement of information (Lysons & Farrington, 2012)

The approach of either centralised public procurement or decentralised public procurement is chosen in different parts of the world. The European Union, for example (Brezovnik, Oplotnik & Vojinović, 2015: p. 38), uses mainly the decentralised approach. The reason for decentralised approach of procurement is that of efficiency for the user at the level concerned and at the same time it promotes the private sector. The advantages and disadvantages of the use of centralised and decentralised procurement systems are presented in Tables 2.2 and 2.3.

Table 2.1: Centralised Procurement

| CENTRALISED PROCUREMENT | <i>ADVANTAGES</i> | <i>DISADVANTAGES</i> |
|-------------------------|---|---|
| 1. | Standardisation of materials and products | Slow responses to regional divisions |
| 2 | Increase in negotiation control as bulk buying increases volumes in discounts | Dissatisfaction from geographically detached business units |
| 3 | Improvement of control | Less integration with other user departments – working in silos |
| 4 | Administrative cost reduction by the use of information technology systems | Top heavy staff hierarchy |
| 5 | Supplier relations are improved | Lack of procurement technical knowledge in specific requests |

(Source: Adapted from: Badenhorst-Weiss & Tolmay 2021: p. 28)

Table 2.2: Decentralised Procurement

| DECENTRALISED PROCUREMENT | ADVANTAGES | DISADVANTAGES |
|---------------------------|--|---|
| 1. | Improved relations between decentralised procurement and other functions | Minimal economies of scale |
| 2 | Effective service delivery to regional divisions | Duplication of job roles and facilities |
| 3 | User departments receive a faster reaction to decisions and emergencies | Possibility of communication breakdowns |
| 4 | Greater self-rule | Difficulties in controlling the procurement function |
| 5 | Generosity of the support of local suppliers | Confusion amongst suppliers – too many offices to deal with |

(Source: Adapted from: Badenhorst-Weiss & Tolmay, 2021: p. 29)

2.7 PUBLIC PROCUREMENT CHALLENGES IN SOUTH AFRICAN HEIs

Universities as public institutions form part of higher education and have a pivotal role to play in the production of knowledge creation, generating graduates at undergraduate and postgraduate levels, and delivering and providing services to all stakeholders of the university in achieving institutional success of transnational and national goals within the African continent. Thus, the relevance and particular importance being placed on universities as public institutions to operate within financial agendas and procurement is an important part of the financial profit-making financial agendas (Badat, 2015: p. 176-178).

Higher education institutions (HEIs) are said to be operating in a competitive and commercial landscape (SouthAfrica.info., 2014) where they are expected to rise as world leaders. This is demonstrated through the understanding that the institutional procurement teams have to take a lead in terms of costs and resource maintenance in achieving strategic goals, which include cost savings, among others, while addressing the following:

- The facilitation of suppliers to promote the driving of revenue growth, the satisfaction of students as well as attracting academics who are considered the best in their fields.
- The building and protection of the institution's reputation through the management of risk as well as brand building which is considered positive.
- The collaboration which contributes to effectiveness and efficiency in the establishment (Green, 2014: p. 1).

2.7.1 Public Procurement Challenges within the Systems at HEIs

Procurement plays a strategic role in achieving crucial goals in supply chain management. As Mavunga (2019) pointed out, this has stemmed from the #FeesMustFall campaign which began in October 2015, universities in South Africa faced a downward demise of how public funding was distributed. There was a predicament faced by the South African government to decline public funding thus increasing inflation. This in turn saw an increasing rate of inflation, leaving South African universities with a shortfall of nearly R2.33 billion (Mavunga, 2019: p. 84). The operational costs of universities have increased as a consequence, seeing the cost of higher education rise by between 8% and 12% per annum (Mavunga, 2019: p. 85). Since procurement is the subject of budgetary processes, it is seen as a capacious part of the financial strategy to accomplish service delivery against budgetary constraints in higher education institutions as they make use of public funds. Procurement plays a strategic role thus looking into a study of this nature - the procurement system of managing costs, ensuring fairness and sustainable competitiveness is imperative as well as suppliers who bring in revenue and play a big part in the procurement system and are part of the integral work process of procurement. In terms of a competitive environment, higher education institutions are expected to rise as world leaders thus the need for a well-led procurement system by effective teams in achieving strategic goals.

Similar to several other nations, South Africa relies significantly on its public procurement system and has enduring challenges pertaining to corruption inside this system. According to Grey (2021), however, it is important to note that South Africa's legislative frameworks for public procurement and anti-corruption are separate and unique from each other. Despite being aware of substantial corruption during the last years of apartheid, the focus on combating corruption was not prioritised as a main aim during the early stage of post-apartheid reform

and the establishment of public procurement systems. The measures aimed at combating corruption in public procurement have mostly consisted of criminal crimes under the anti-corruption framework and administrative regulations implemented inside the government's public procurement system. However, the effectiveness of these measures has been limited. The insufficient consideration given to the intersection of these two systems has engendered the possibility for sustained proliferation of corruption within the realm of public procurement (Procurement Watch, 2021). Therefore this study is unique in addressing way so how South African HEIs can rearrange and improve their public procurement systems by looking at the constructs of people, process and technology.

In 2020, the Public Affairs Research Institute (Brunette & Klaaren, 2020: 1) put together a three (3) part position paper as to how South Africa needs to move forward in removing continuous procurement challenges. They felt that there was a consensus that South Africa's procurement systems were in crisis. In developing the suggestions for the public procurement reform, they identified the critical challenges that exist within all segments of the public sector; HEIs were part of this segment. The identified challenges were as follows:

1. Public procurement is extensively affected by political interference and has greatly destabilised foresight into achieving strategic plans of the country.
2. There are noticeable shortfalls in the procurement function at the regulatory and operational levels. The procurement system does not have suitably qualified skilled staff employed.
3. Public procurement is faced with an intricate, disjointed, and inconsistent regulatory administration resulting in operational inefficiency and lack of integrity.
4. "Public procurement involves stark trade-offs between the procedural integrity necessary for fairness and to protect public funds, and the flexibility associated with the operational substance of purchasing" (Brunette & Klaaren, 2020: p. 2).
5. Incongruity is found between a formal approach towards regulation and then that of government's commitment to spending public procurement funds without integrity.

A study conducted in 2020 by Fourie and Malan addressed the public procurement systemic challenges being faced in the South African economy. These challenges were recognised as follows:

1. The over and underspending of public procurement finances.
2. Malpractices concerning contracts in public procurement – where practices are not executed in accordance with legislation.
3. Lack of effective procurement skills, capacity, and knowledge amongst public procurement staff.
4. Inadequate procurement planning thereby not being able to meet the goals of the institution.
5. Poor monitoring and evaluation of the procurement process and system.
6. Non-compliance with supply chain management policies and regulations.
7. Lack of accountability and display of unethical behaviour within the public procurement function (Fourie & Malan, 2020: p. 13-16).

A higher education Conference, hosted by PwC at Cape Town in 2015, extensively looked at the SCM challenges faced by higher education institutions (universities) of South Africa; through research completed, the cited challenges were as follows:

1. ***Ineffective planning for annual procurement by universities.*** This then affects the pressing need for unplanned procurement at a higher cost.
2. ***Necessity for proper vigorous structures*** – in terms of SCM policies, processes, procedures, and a clear understanding of the delegation of authority from staff to management.
3. ***Lack of data analysis by universities.*** Data analysis is an important instrument that will allow universities to identify and evaluate their spending patterns and eliminate ‘repeat’ purchases, which in turn will develop their effective buying power and advance their value-for-money concept. Through effective data analysis, supplier performance can be monitored and buyer performance can be managed in terms of categorising where buyers need support either to grow into becoming more specialised or improve their performance.
4. ***Effective Management of bid committees.*** Universities in South Africa more often than not have just one tender committee that takes care of the procurement process from measurement and evaluation to awarding of a tender. Thus, a need to look into the efficiency of the procurement tender process. The possibility of an introduction to an

independent tender committee could be an area of design that could be explored further.

KPMG also carried out an inquiry in the form of a case study at a leading traditional university in South Africa, after amendments were made to the Higher Education Amendment Bill in 2015. This bill was planned to be put together to provide the Minister of Higher Education to help direct and channel the procedures and policies of all South African universities. The need for this was driven out of motivation to help progressively move the transformation goals of South Africa. Universities have a social duty towards meeting supplier development and to buy/procure in a method that is fair, equitable, transparent, competitive, and cost-effective. The research (KPMG Case Study, 2016: p. 3) found that at the top of the list of challenges for university executive management teams and council were questions about:

- Whether administration of their spending dimensions led to ideal effects.
- Whether societal responsibilities in direct relation to supplier development in line with BBBEE requirements are being met.
- In terms of SCM practices, whether they are delivering fair, equitable, transparent, competitive, and cost-effective results.

2.8 CHAPTER SUMMARY

Supply Chain Management (SCM) plays an important role in producing and continuing the value chain in higher education institutions, SCM acts as an instrument to further expedite the proper usage of governance and funds. This subject is being accentuated by many organisations, both private and public that are now moving SCM to the extent of whereby reporting lines are either moving to the board or in the case of higher education institutions to the council (PWC, 2015). As in the case of the selected HEIs of the study, the council rests as the highest authority and approves the procurement policy. Higher Education in South Africa needs to move towards progressing and elevating their supply chain units of operations from only a 'procurement' function to a strategic SCM asset function. Further, this must then be supported by vigorous and strong structures of policies and procedures, effective systems, technologies, and capabilities (KPMG Case Study, 2016: p. 3).

South Africa was placed 70 out of 180 nations in the Corruption Perceptions Index (CPI) (Competition Commission, 2019), which shows that public sector fraud and corruption a serious concern inside the public sector. Supply chain procedures and procurement are the main areas of corruption in South Africa's municipalities, provincial departments, HEIs, public schools, and parastatals (Mantzaris, 2017: p.125). Processes involved in public procurement and the supply chain are prone to procurement fraud and corruption (Mazibuko & Fourie, 2017: p. 109). Additionally, inefficient procurement methods are poorly managed in the South African public sector, which undermines public trust in the environment, leads to wasted spending, and jeopardises the legitimacy of the public sector. Similar conclusions on public procurement fraud were made in the study of Rustiarini, Nurkholis, & Andayani (2019: p. 350). A lack of information, knowledge and limited research on higher education public procurement systems demonstrate that it is necessary in understanding and evaluating the system of the challenges as observed by authors of different studies within dissimilar contexts of public procurement. Based on the collective review of the literature conducted, this study will enable the understanding of the challenges encountered. The study will provide the opportunity to modify certain aspects that have proved to be a challenge. The following chapter will go into the subject of public procurement practises in South Africa. A conceptualization of a literature review will be undertaken.

CHAPTER THREE

LITERATURE REVIEW – PART B

(Public Procurement Practices in South Africa)

3.1 INTRODUCTION

Chapter 2 of this thesis provided a comprehensive and concise overview of public procurement on a worldwide scale, with a specific focus on Global, Africa and South Africa. In this chapter, Chapter 3, a comprehensive literature review will be conducted to examine the fundamental essence of the research. The focus of this review will be on the context of public procurement in South Africa. The literature review will start by discussing the significance of public procurement and examining existing research perspectives in this area of investigation.

Management of public procurement ensures that all products and services are purchased properly so that operations and processes may go forward efficiently and positively. This chapter lays an outline of the comprehensive discussion that shall follow within the context of Public Procurement in South Africa, public procurement in HEIs, challenges at HEIs, regulated discussion of the Acts that fall within public procurement in South Africa, procurement processes and policies of the selected HEIs and the detailed background into the context of public procurement in South African and then with HEIs specifically.

3.2 PLACING THE STUDY IN CONTEXT

Foregoing the 1994 first democratic election in South Africa, procurement in the public sector was predominantly carried out and benefited by contractors who were very well established and had a large business footprint. This in turn made it increasingly more difficult for those smaller, previously disadvantaged and not so established contractors in receiving contracts and more being able to qualify to partake in large government procurement contracts. The newly elected government post-1994, revised the public procurement system headed by the State Tender Board under the Ministry of Finance and the Department of Public Works, aided with financial and procedural support from a grant of the World Bank, this confirmed that changes

on budgetary and financial restructurings were to take place on the public procurement system. (Republic of South Africa, 2008: p. 31).

The National Treasury then played a central part in bringing together financial management and procurement transformation reforms through the newly elected government, since 1994. The transformation agenda of public procurement reforms was specially set out to look into remedying the imbalances of the past in terms of unfair practices with regard to public procurement. This transformation agenda focused on supporting principles of good governance and the start of a preference system, to help address definite socio-economic objectives. (Brunette & Klaaren, 2020: p. 1).

Over the last 2 decades, many policy documents were established and adopted. The National Treasury (2005) issued a combined Supply Chain Management policy document, titled: “Supply Chain Management - A Guide for Accounting Officers of Municipalities and Municipal Entities to do away with the old procurement and provisioning practices of the past. Centred on the Municipal Finance Management Act (MFMA) 56 of 2003, the guide for Accounting Officers became the core policy instrument that sets out the regulatory environment and the integration of effective SCM with reference to public procurement. Public procurement in this sector functions within this regulated context of guidelines that look to internationally recognised best process for financial management, public procurement and the public sector environment at large, this assists the South African government in terms of effective service delivery and system processes (Ambe & Badenhorst-Weiss, 2012a: p. 246). Procurement within supply chain management falls in the service sector, being service based within both the public and private sectors, thus these new processes were meant to bring about noteworthy uniformity in aligning procurement processes and in understanding the government’s intention of new preferential procurement policies and legislation in South Africa. The main aim of the National Treasury in introducing the MFMA was to ensure clear direct guidelines on areas of responsibilities and roles of accounting officers falling in line with the responsibilities and accountability of procurement officials and staff as well.

Procurement principles and guidelines were issued by the South African government as recommendations of the way in which behaviour, accountability and ethics of all procurement officials and staff as part of the public sector employment – this was a clear message on the part of the government in showing their commitment towards public procurement systems in making them workable. Since 1998, the South African government has encouraged Public-Private Partnerships (PPPs) in procurement (Mitchell, 2007: p. 5). Current changes in 2017 to the Preferential Procurement Policy Framework Act (PPPFA), aimed to develop all of the existing practices linked to procurement. More importantly, the new changes of the PPPFA advises on the standard procedures and uniformity in bid and contract records, it allows procurement and finance in the South African public sector to be effectively managed judiciously (Republic of South Africa, 2005:5). The Public Management Finance Act (PMFA) of 1999, was introduced in supply chain management and is used closely within procurement at national and provincial levels to ensure all revenue expenditure, assets and liabilities of the government entities are managed efficiently and effectively by those individuals who have been given the said responsibilities. Section 38 (iii) of the **PFMA**, 1999 stipulates that the “Accounting Officer must ensure that the department, trading entity or constitutional institution has and maintains: an appropriate **procurement** and provisioning system which is fair, equitable, transparent, competitive and cost effective” (Badenhorst-Weiss, Strydom, Strydom, Heckroodt, Howell, Cook, Phume & Horn, 2014: p. 211).

All of these guidelines and policies have as well greatly supported HEIs in helping to enhance the monetary and profitability of the institutions of higher learning in the public sector, i.e. Universities as a part of the public sector. In this way, HEIs have tried to use the policies and guidelines to help redress the imbalances of the past whilst collectively trying to find ways of raising profits, however in spaces where procurement systems have not been meritoriously aligned, challenges on various levels arise from procurement staff, procurement process and suppliers.

3.3 IMPORTANCE OF PUBLIC PROCUREMENT

The importance of public procurement is significant to various facets of the economy of a country. The local, national and international economies have benefited from public procurement. The figures on public procurement indicate that the amount of public procurement (in Organisation for Economic Co-operation and Development [OECD] countries) is representative of 13% of the GDPs (OECD, 2021). The World Trade Organisation (WTO) approximates that public procurement represents 12-15% of economies globally (World Trade Organisation, 2016). According to the Chartered Institute of Procurement and Supply (CIPS, 2022), public sector procurement should systematically assist public organisations (organs of state) to maximise effective outputs. This should occur as funds have come from public taxes and public grants. In all government sectors, public procurement must make certain that these funds are managed in a way that determines value for money and accountability. The main aim of any public sector procurement function should be to provide essential public services create value for money and be supportive of all government processes and procedures at all levels within a given country (CIPS, 2022).

The OECD (2022) indicates that public procurement globally signifies a major share of government spending. Further, explaining that through their research it has become evident that even though suitable regulatory and strategic structures exist, accountable business conduct in public procurement is comparatively low. Staggeringly, this should not be the case, as per the OECD (2022) governments should strive to make policymakers and procurement practitioners aware of the economic benefits of integrating responsible ethical business in public procurement supply chains.

Public procurement is considered an innovative instrument in the public sector and is controlled by many, a multiplicity of stakeholders. These stakeholders have views that are conflicting in innovation, economy, politics and society.

Procurement has also been known as an instrument that promotes sustainability. Procurement is important to an enterprise in that it enables the following to be realised:

- The organisation's spending becomes managed. This is achieved as an annual buying plan gets developed. This plan in turn leverages the purchasing processes, the cost reduction methodologies as well as forecasting the market analysis.
- The organisation's operations are supported because of procurement through the ability to acquire low-cost and high-quality inputs and services, which can then be purchased by customers. The value process in the establishment is thus supported.
- The process of risk management gets under control as methodologies such as Failure Mode and Effects Analysis are employed. Contract management has its own advantages and can effectively help the organisation in the long run as it could lead to price shock mitigations being undertaken (Millington, 2016).

3.3.1 Importance of Public Procurement in South Africa

In countries across the world, the universal goal of procurement will be to save money and give off the best value. Procurement is an important part of supply chain management; if the procurement process and system are correctly followed, it will in return result in cost savings and satisfied patrons. As the 21st century is advancing in the digital era, companies are progressing towards digitisation, Companies find themselves in the space of advancing in speed their supply chains and procurement processes to keep up in this digital race (Goudz & Atif, 2019: p. 220).

As specified by Angel Gurría, the Secretary-General of the Organisation for Economic Co-operation and Development (OECD), “public procurement is a major part of the economy and public spending and can be regarded as a clear indicator of government efficiency” (OECD, 2017: p 6). Over the last few years in South Africa, there has been a gradual economic downturn – which required a rehabilitated emphasis on the efficiency of public procurement. On this point, in February 2022 the South African presidency received part two of the report of inquiry into the allegations of state capture and corruption in the public sector of South Africa (Guppy, 2022: p. 1). The need for this Commission (that being the Zondo Commission) was to look into the aspects of South Africa's public procurement – in terms of fraud and corruption. President

Cyril Ramaphosa acknowledged from the report that much work was needed as public procurement systems are following unethical practices resulting in major corruption (Mantzaris, Pillay, & Jarbandhan, 2022: p. 112). The President further commented that much care and work was essential in taking the necessary steps to protect the public resources of the country. A significant recommendation put forward to the President by the Commission is the formation of a Public Procurement Anti-Corruption Agency – it should be independent and be able to assess current operational public procurement systems. This recommendation then strongly coincides with the workable suggestion put forth in the draft Public Procurement Bill in 2020 for the establishment of a Public Procurement Regulator in South Africa (Guppy, 2022: p. 1).

Thus, governments are progressively recognising the role of public procurement in improving public sector productivity and actively engaging in cost-saving exercises. In South Africa, the public sector supply chain management has come to be a prevalent topic for debate and discussion, especially amongst public sector academics, management practitioners, and public policy researchers (Fourie & Malan, 2020: p. 6). Public procurement has gathered much interest as it is used as a policy instrument. The reason can be connected to the unequal and partial apartheid policies that favoured a particular race group of companies – large and small.

In 1994, the apartheid system in South Africa was abolished and with this came new policies and structural systems. Subsequently, procurement structures in South Africa were thereby given constitutional status. Up until the present year 2022, all state bodies are expected to procure goods and services in accord with a procurement system that is transparent, equitable, fair, competitive, and cost-effective (Section 217 of the South African Constitution). As per section 217 (2) of the South African constitution a preferential procurement system must be placed in all public sector statutory bodies. Public HEIs are therefore expected to conduct and carry out their public procurement as per the endorsement set out in Section 217 of the constitution as HEIs are state institutions, which are autonomous within the public sector domain. All thirty-six (36) state HEIs in South Africa must abide by all governance structures laid out by the government. Therefore, HEIs are to handle all their procurement policies, practices, and daily operations in compliance with public procurement guidelines (Ambe, 2016: p. 280). In South Africa, compliance audits are a thorough way of monitoring mechanism that can be used to construct and demonstrate adherence to laws, regulations, and policies in

achieving effective procurement operations and practices (Barbieri & Zanoni, 2015: p. 1). The primary purpose of procurement will constantly be to save money and maintain a profit economically and efficiently (Goudz & Atif, 2019). Trammel, Abutabenjeh & Dimand (2020), through their systematic literature research, stated that public procurement is accountable for accomplishing efficiency by reducing costs while maintaining the quality of goods and services provided by an organisation/institution. Public procurement has been and will continue to be unpacked further in solving public challenges (Trammell, Abutabenjeh & Dimand 2020: p. 657). The role of public procurement through major reforms and shifts in South Africa heightens the attention drawn to its importance.

3.3.2 Importance of Public Procurement in an Organisational Setting

The significance of procurement is crucial for the development, progress and stability of organisation. The influence of the procurement function has become noticeably more recognised by many organisations. It is seen as an essential tool for organisations towards gaining competitive advantage and achieving levels of profitability (Turner, 2011: p. 89). This is because procurement is the biggest expense accrual role in an organisation, therefore its tasks affect the profitability and productivity of the whole organisation. The function of procurement plays a key critical role in assisting organisations in their efforts to push for cost reductions, to further develop material acquisitions and deliveries, reduce cycle times and to boost the process of improving the bottom line by ultimately bringing more value to its customers (Bozarth & Handfield, 2013: p. 210).

In the opinion of Hugo and Badenhorst-Weiss (2011: p. 7), productivity and effectiveness of the procurement function can influence three strategic and fundamental areas, discussed as follows:

1. The profit advantage effect – this reveals that a small fraction of savings in the purchase price may be the origin of a fairly large percentage increase in an organisation's profit.
2. The turnover/total cost balance: the procurement function has a significant effect on the net income of the organisation by balancing the sales with the costs of inputs that are necessary to produce a turnover.

3. Return on Investment (ROI) – capable procurement processes have the possible likelihood to lower the costs of sales, which allows the gross income or the total income of the organisation may rise.

3.4 SCM IN THE SOUTH AFRICAN PUBLIC SECTOR

Supply chain management (SCM) provides a reference framework for the many components that make up supply networks in the public sector (from national and provincial departments to local government, strategic partners and suppliers). The following types of people are involved in the supply chain for the public sector: (Badenhorst-Weiss, Biljon, & Ambe, 2017: p. 364).

- a. Private businesses or suppliers that get orders from public sector agents;
- b. Accounting officials; and
- c. Policymakers.

When applied to the public sector, supply chain management (SCM) focuses not only on the question of which institutions collaborate in the provision of goods and services, but also on the question of how these institutions function in order to provide quality services to the citizens of the country and ensure that value for money is achieved.

With the implementation of procurement reforms, the supply chains of the public sector in South Africa have been transformed. These changes began in 1995 and were aimed at two primary areas:

1. The promotion of good governance principles
2. The use of a preference system to achieve socioeconomic goals

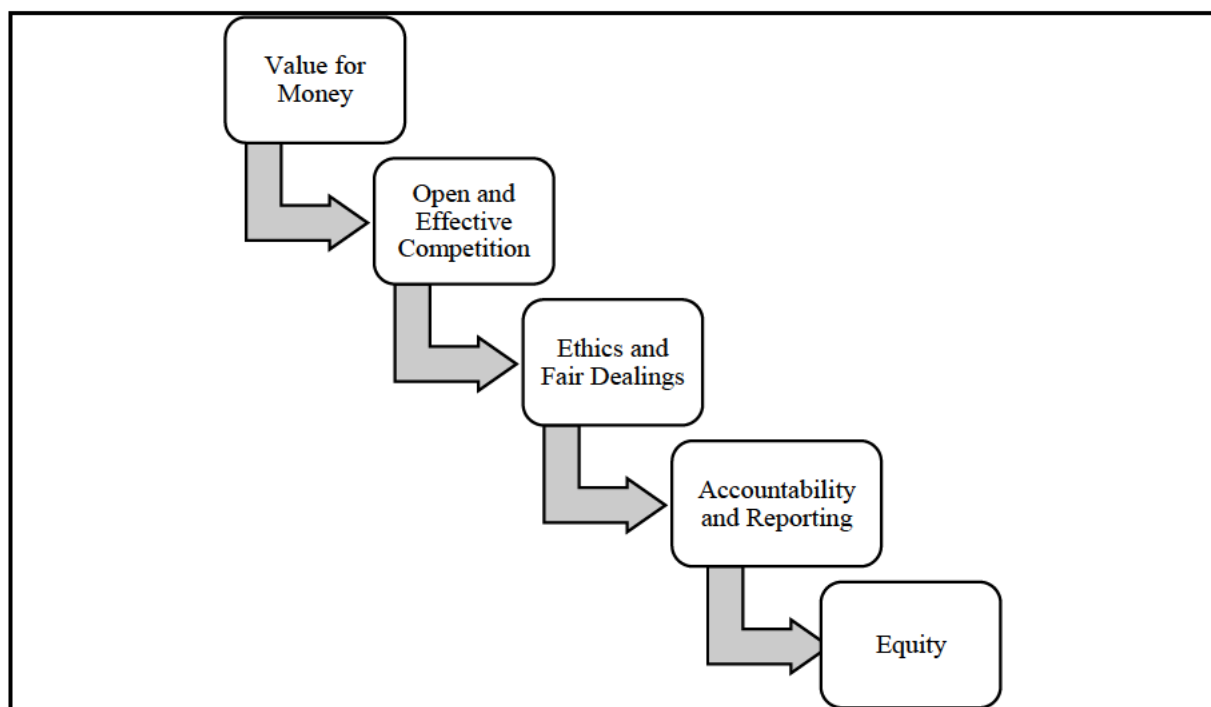
The procurement reform procedures were included in Section 112 of the Municipal Financial Management Act 56 of 2003 (MFMA) and section 76(4) of the Public Finance Management Act 1 of 1999 (PFMA), as well as section 5 of the Preferential Procurement Policy Framework Act 5 of 2000. (PPPFA). National Treasury chose in 2003, in partnership with provincial treasuries, to use an SCM strategy to guide consistency in public procurement reform procedures throughout government and to replace outmoded public procurement and interim

practices. This was produced by the Treasury Department to provide advice on the deployment of an integrated SCM function (Badenhorst-Weiss, Biljon, & Ambe, 2017: p. 365-366).

3.4.1 The Five (5) Pillars of SCM

The South African government issued the guidelines for the five pillars of SCM as a statement of its commitment to a procurement system. In ensuring that this will add to the widespread prosperity of the country and the achievement of enhanced economic and social well-being for all South Africans, as well as a prescription of standards of behaviour, ethics, and accountability that it requires of its public service. As depicted in Figure 2.1 the five pillars are identified and thereafter discussed (Badenhorst-Weiss, Biljon, & Ambe, 2017: p. 367; Eposi, Potgieter, Pelser, 2021: p. 50-52).

Figure 3.1: The Five Pillars of SCM



Source: Adapted from National Treasury, 2005.

- ***Pillar 1 – Value for Money***

Against this criterion, an institution must defend its procurement decisions. Price alone is not always a trustworthy indication, and departments will not always get the greatest value for their money if they pick the lowest-priced offer that satisfies all necessary conditions. Best value for money refers to the optimal result when all relevant costs and benefits throughout the procurement cycle are taken into account.

- ***Pillar 2 – Open and Effective Competition***

A clear framework of procurement rules, policies, practices, and processes that are easily available to all stakeholders. Transparency in the procurement process is crucial. The promotion of effective competition via procurement procedures according to market conditions is important.

- ***Pillar 3 – Ethics and Fair Dealings***

If all parties adhere to ethical principles in procurement, they may do business based on mutual trust and regard. They will be able to do business in a fair, ethical, and honourable way. All government personnel involved in procurement, especially those engaging directly with suppliers or prospective suppliers, are obliged to identify and efficiently manage conflicts of interest. They must guarantee that they do not jeopardise the state's reputation by accepting gifts or hospitality, and they must aid in the eradication of fraud and corruption.

- ***Pillar 4 – Accountability and Reporting***

This entails making certain that employees and management are held accountable for the plans, activities, and results of their endeavours. A crucial component of accountability is openness and transparency in administration, which may be achieved via exposure to public scrutiny and through reporting.

- ***Pillar 5 – Equity***

In the context of the five pillars of SCM principles, the term "equity" refers to the implementation and adherence to government policies that are intended to advance individuals or groups of individuals who have been disadvantaged by unjust discrimination. This pillar is critical to South African public sector procurement. It assures that the government is dedicated to equitable economic progress. No public procurement system should be run unless it is built on this pillar.

3.4.2 Management of Public Procurement in South Africa

Supply Chain Management (SCM), is viewed as an important tool for managing public procurement and is a fundamental fragment of judicious financial management in the South African public sector. SCM functions in a regulated context, which is set out by the government and extended into local government structures, municipalities, provinces, and institutions in terms of policy, rules, and legislature. The intended purpose then of SCM is to add importance at every different stage of the procurement process: extending from the demand for goods and services; to its acquirements; to managing physical distribution and logistics and finally to its disposal/end. By following this kind of management, SCM purposively looks at all paucities in the actual current system and practice of procurement management as a whole. Further to the adoption of an SCM policy, the institution's or public sector procurement policy must first be in sync with each other in ensuring uniformity in practices and procedures which will then in turn endorse the regulation of SCM practices (National Treasury, 2005).

Rules set out by National Treasury (NT) in South Africa, highlight the provisions of the Public Finance Management Act 1 of 1999 (PFMA) and the Preferential Procurement Policy Framework Act 5 of 2000 – revised in 2017 (PPPFA) provide the broad legislative background for the functioning of SCM. However, the legislative procurement context at UKZN focuses largely on three (3) acts. With the focus of this study being on the HEIs in KZN, therefore it is of importance as per the HEIs procurement policy, three (3) regulatory frameworks will be looked at in particular: Higher Education Act 101 of 1997 (in the context of the three HEIs being a public higher education institution), which falls under the South African government entity banner. Universities as per National Treasury (2005) do not have to adhere and comply

with the PFMA Act, the reason; “universities are excluded due to autonomy of these institutions” (National Treasury, 2005).

3.4.3 Role of National Treasury in South Africa

In South Africa, National Treasury (NT) is in charge of handling the national government finances of South Africa. To promote economic growth, good governance, social progress, and growing quality of life for all South Africans, it is crucial to promote effective and sustainable public financial management. South Africa’s Constitution requires the NT to provide openness, accountability, and solid financial controls in the administration of public funds. The Public Finance Management Act also outlines the National Treasury's statutory responsibilities. The National Treasury is tasked with promoting the government's fiscal policy framework, coordinating macroeconomic policy and intergovernmental financial relations, managing the budget preparation process, and facilitating the Division of Revenue Act, which ensures an equitable distribution of nationally raised revenue among national, provincial, and local government, and monitoring the implementation of provincial budgets. As directed by the president and the legislature, the National Treasury will continue to promote the best allocation and use of financial resources at all levels of government in order to eliminate poverty and vulnerability among South Africa's most disadvantaged (National Treasury, 2022).

During the next decade, the priorities of the National Treasury include increasing investment in infrastructure and industrial capital, enhancing education and skill development to increase productivity, enhancing the regulation of markets and public entities, and combating poverty and inequality through efficient public service delivery, increased employment levels, income support, and empowerment (National Treasury, 2022).

3.4.4 Key Role Players of the South African Government SCM and their Functions

All authorities and other role participants in an SCM system, according to NT, must adhere to the highest ethical standards. To foster mutual trust and respect, as well as a climate in which business may be done with honesty and fairly and reasonably. All officials and other SCM role players must follow the National Treasury's Code of Conduct for SCM Practitioners (National Treasury, 2003; Ambe & Badenhorst-Weiss, 2012b: p.11007).

Table 3.1: Key Role Players

| Key Role Players | SCM Functions |
|---|--|
| National Treasury | <ul style="list-style-type: none"> • Introduces and supervises SCM setup • Creates Treasury regulations • Accounting officer receives instructions, basic contract terms, and bid materials. • Establishing basic reporting requirements; Policy results are monitored. |
| Provincial Treasury | <ul style="list-style-type: none"> • Help departments adopt SCM • Build capacity for departments by offering guidance • Organize training throughout the province • Track the effects of policies |
| Accounting Officer/Chief Executive Officers | <ul style="list-style-type: none"> • Establish an SCM unit under the direct direction of the Chief Financial Officer; • Create and execute an SCM policy; • Follow national treasury implementation guidelines; • Develop internal processes; • train and equip officials; • Be ethical. |
| Chief Financial Officers/SCM Units | <ul style="list-style-type: none"> • To create and sustain a successful SCM unit, one must hire, select, train, and manage the right people. • One will also need to provide managers and supervisors with the tools they need to run a variety of SCM operations, facilities, and networks. |

Source: Adapted from National Treasury, 2005

3.4.5 Relevant Public Procurement Acts – South Africa

According to Ambe (2019: p. 652), public procurement has grown in importance in South Africa since 2004. The South African government uses the regulated Acts as an enabling instrument to achieve policies aimed at inclusive growth, socioeconomic development, and change. As a result, the regulated public procurement Acts play a significant role in maintaining institutional compliance, effective processes, and compliance. These Acts should be considered significant and are thereby applied to HEIs. Higher education institutions all around South Africa have included various portions and essential clauses in their procurement policies and the day-to-day duties they do. There is a connection between the debate of these Acts and the

procurement policy context of HEIs. The regulated Acts of public procurement shall be summarised:

- **Broad-Based Black Economic Empowerment Act 53 of 2003**

The Broad-Based Black Economic Empowerment (B-BBEE) is an initiative by the government of South Africa in enhancing the economic empowerment of those classified as black: These include Africans, Indians, and Coloured in South Africa). The South African Constitution of 1996 provides for the right to equality and the elements of equality; nonetheless, due to circumstances like birth circumstances, some people have been disadvantaged. The main purpose of broad-based black economic empowerment is therefore meant to bridge the gap that exists between the substantive and formal equality that exist within the society's structures. When it comes to the aspect of transacting with private companies, an entity secures a better B-BBEE rating if it transacts or procures its goods and services from organisations that have high BBBEE ratings. The B-BBEE Act 53 of 2013 was legislated under the custodianship of the Department of Trade and Industry (DTI), to provide a fair representation of black people in the economy of South Africa (Shai, Molefinyana & Quinot, 2019: 5).

The first codes of good practice were introduced under the B-BBEE Act in 2005 and the prioritised decision for these codes was to help advice and support the private and public sectors of South Africa in applying the intents of the Act. To check if an entity meets the level of compliance, a scorecard was further introduced in 2005, of seven sub-elements, namely: (Shai et al., 2019: 5)

- Ownership
- Management Control
- Employment Equity to help regulate
- Skills Development
- Preferential Procurement
- Enterprise Development
- Residual Elements

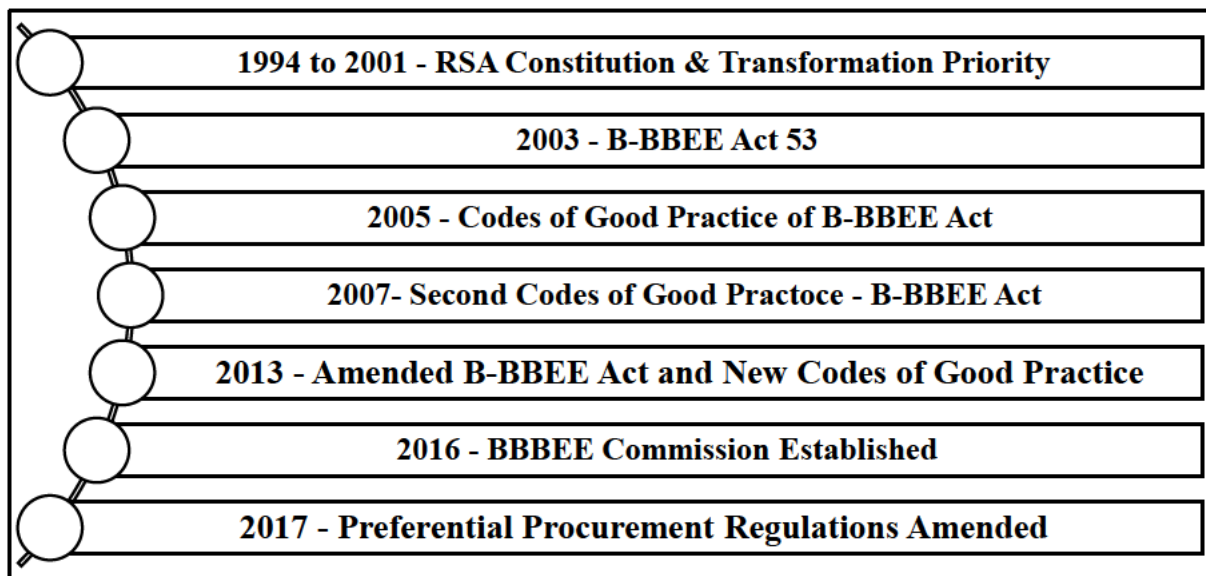
In 2013, the B-BBEE Act was modified to report all presented and perceived flaws in the earlier versions of the constituted Act. In 2013, the third renditions of the scorecards were instituted and brought about new changes as well as with their weightings. To date, the new scorecards are as follows: (Shai et al, 2019: 6)

- Ownership
- Management & Control
- Employment Equity
- Skills Development
- Preferential Procurement
- Enterprise Development
- Enterprise Supplier Development
- Residual Element
- Socio-Economic Development

The results of a study by (Amoah, 2023: p. 130), suggest that the implementation of the Broad-Based Black Economic Empowerment (BEE) policy within the public procurement system has had a positive impact on the economic standing of black construction professionals. Additionally, it has facilitated the development of their abilities and enhanced their opportunities to get public contracts. These findings highlight the significant advantages derived from the BEE policy. Nevertheless, the policy's effectiveness is hindered by several challenges, including nepotism, corruption, and the exploitation of political connections by those responsible for implementing the policy within the public procurement system. These factors impede the programme's ability to fully realise its intended goals. The South African government should adopt efforts to eliminate any obstacles that have a negative impact on the proper execution of the policy, in order to achieve the desired policy goals.

Procurement with a preferential treatment element is considered when companies are dealing with the B-BBEE process. An organisation can therefore decide to deal with an organisation with a low BEE rating but has more black ownership and so it secures more points in its own ratings. This is in relation to either a service provider or a goods supplier (Fulbright, 2018). Below is a historical overview and understanding of the B-BBEE Act 53 of 2003.

Figure 3.2: Historical Overview of B-BBEE Act



Source: (Forbes & Abraham, 2019: p. 363)

- **Preferential Procurement Policy Framework Act 5 of 2000**

The Preferential Procurement Policy Framework Act (PPPFA) 5 of 2000, was gazetted and put together solely to address all procurement interventions. The Act was constituted with the organs of state in mind – to assist organs of state in defining their preferential procurement point system. In 2001, the PPPFA rolled out the identified point system and the principles that would be applicable, and when and how preference will be assigned in the process of assessing public tenders. The 80/20 and 90/10 point systems were introduced, depending on the value of a contract, 80 or 90 points are awarded to a bidders' price and then 10 or 20 points on the point of preference. This highlights the bidders' input directly to black economic empowerment (Quinot, 2020). The year 2011 saw new changes and revisions brought upon by the PPPFA in a crucial effort towards aligning the PPPFA and the B-BBEE Acts. This was the first after many years of the introduction and introduction of the PPPFA. The 2011 revisions of the PPPFA saw stricter and former revisions of the Act, preferential preference points were then closely awarded to a company based on the company's B-BBEE status.

The year 2017 saw the further and most recent changes to the PPPFA. Procurement thresholds were moved and the 80/20 and 90/10 rule were considerably reformed. These new amendments saw the regulations of procurement considerably amplify the preferential aspects of public sector procurement. Organs of state would now have to take more time in awarding tenders and in understanding the choices they make with regard to contracting and sub-contracting. The new 2017 regulations of the PPPFA, “affords organs of state with an election to apply one or more of the listed pre-qualification criteria as follows: (Sedumedi, 2017: 2)

- That a tendering company have a minimum B-BBEE contribution rating
- That a tendering company be an Exempted Micro Enterprise (EME) or Qualified Small Business Enterprise (QSE)
- That a tendering company subcontract a minimum of 30% of the contract to an EME, QSE or co-operatives which are 51% black owned, or black owned by certain designated groups (that is: black youths, women, person with disabilities, veterans, etc.)”.

- **Public Finance Management Act 1 of 1999**

The Public Finance Management Act (PFMA), 1 of 1999, as modified by Act 29 of 1999 (PFMA), modernises financial management in the South African Public Service to ensure sustainable development and high-quality public services. The PFMA standardises public sector financial management, improving on the previous system, which hindered accountability due to various regulations for different institutions and excessively tightly controlled spending control (Madue, 2007: p. 306). The PFMA regulates financial management in the national government, ensures that all income, spending, assets, and liabilities are handled efficiently and effectively, lays out the obligations of those in charge of financial management, and addresses related concerns (National Treasury, 2000).

The 1990s saw major legislative reform in South Africa, and the PFMA was one of the final Acts passed. Before submitting the Bill to Parliament, the African National Congress (ANC) led government spoke with stakeholders for almost six years. The ANC government saw the Act as a key instrument. PFMA (1) of 1999 introduced the following: (Mandiwana & Llyod, 2013).

- A. Good financial management
- B. Financial control and responsibility
- C. Maintains government and public entity transparency.
- D. Ensures institutions' income, spending, assets, and liabilities are managed responsibly.

Public procurement in the South African government sector serves as a strategic instrument for the attainment of mandated socioeconomic goals. In this regard, the government engages in the acquisition of products and services from the private sector, with an expected yearly value of around eight hundred billion rand (Lukhele, Botha & Mbanga, 2022).

3.5 RELEVANCE OF A PROCUREMENT POLICY

A procurement policy defines the underlying concepts and criteria that will be utilised to establish direction and impact procurement choices. It directs employee decision-making within a specific set of conditions within the context of the institution's top management's aims and goals. A procurement policy, according to CIPS (2022), commits an institution and procurement employees engaged towards achieving a goal. Policies have a variety of aims. Legality and responsibility are non-negotiable and should never be compromised.

The existing body of literature on public procurement emphasises the responsibility of the government to use procurement as a means to fulfil internal requirements for works, products, and services, while also aligning with the strategic objectives of public policy. In the African context, scholarly investigations of public procurement include a wide array of topics, including sector-specific concerns like infrastructure, the broader governmental landscape of procurement, and the obstacles encountered during public procurement reform (Kithatu-Kiwekete & Vyas-Doorgapersad, 2023: p. 136).

The following are just a few of the numerous advantages that procurement rules may provide, in addition to helping procurement adhere to specific goals and obligations of an institution: (CIPS, 2022)

- i. By acquiring services and contracts at the greatest price, procurement rules assist organisations in reducing expenses. It aids in improving budget visibility for the organisation.
- ii. A sound procurement strategy guarantees the best quality items at all times.
- iii. To achieve a competitive advantage, procurement may search for new, creative items with the aid of a successful procurement procedure.

3.5.1 Procurement Policy Discussion of HEI 1

The latest procurement policy was updated, approved and gazetted in 2021. The main policy statement of HEI 1 is, “this policy outlines the University's strategic goal, direction, and procedures for purchasing products and services, ensuring that the procedure is reasonable, open, equitable, competitive, and economical” (DUT Procurement Policy, 2021: p. 1-2). HEI 1 is a public institution controlled by the Higher Education Act 101 of 1997, as modified, and the legislation of the HEI. As a result, it has significant legislative independence. The essential principles of the HEI's procurement policy, processes, and practices include good governance, openness, efficiency, and cost-effectiveness.

This policy aims to guarantee that products and services are purchased in a fair, equitable, open, competitive, and economical way. When it comes to procurement at the university, regulations and processes are used consistently. The advantages of standardisation, bulk purchasing, purchasing research, new supplier sources, and increased specialisation in the procurement function allow the university to get the most out of its procurement budget. The procurement policy and procurement standard operating procedures and standards govern university procurement. The procurement policy covers requests, acquisition, risks, procurement, performance, and bidding for goods and services. University workers and entities that buy goods and services must follow the procurement standard operating procedures and standards.

3.5.2 Procurement Policy Discussion of HEI 2

At HEI 2, the Procurement and Contracting Policy was approved and gazetted in June 2016. And then further updated and gazetted in September 2021. Section 217 of the Constitution of South Africa has been quite inclusive of universities and their policies and practices with regard

to procurement at their higher learning institutions. The Policy of Procurement and Contracting has been regulated by Section 217.

It must be stated that continuous review of procurement policies is essential as it ensures processes are fully operational and in line with expectations set out. Review of policies is usually a long-term plan over a two to three-year period. HEI 2 was into its fourth year of the 2016 policy and a review was most definitely required. B-BBEE was introduced in South Africa to help align intuitions to be committed to redressing the imbalances of the past. UKZN has adopted this practice in helping the socio-economic development of the province of KwaZulu-Natal. The Purchasing Consortium of Southern Africa (PURCO) is used by HEI 2 and other South African universities to procure relevant materials and services for the larger economies of scale (UNIZULU, 2013). Most of the time, these relevant materials and services are regularly needed and commonly used.

At HEI 2 the procurement policy is built around the principles of accountability, transparency, and cost-effectiveness; incorporated into these principles are honesty, integrity, fairness, and mutual respect for all parties concerned in the procurement process and procurement activities (UKZN Procurement and Contracting Policy, 2021: p. 5-6).

Through the tender process, HEI 2 boosts and supports fair competition for the procurement of goods and services by using the 80/20 and 90/10 preference point systems. HEI 2 has a registered online database as per the policy and all suppliers have to register through this formal procurement database. It goes through a process of checking, and only those suppliers meeting the necessary criteria are given an opportunity or looked at.

As per the Procurement and Contracting Policy, ethical standards and ethical conduct of procurement officials are very central to the integrity and behaviour of these individuals for interactions with suppliers and in terms of supplier selection as well. These ethical principles in line with the policy then help to regulate behaviours and eradicate fraudulent practices and anomalies. The declaration of interest is included in the procurement system. This makes sure that those parties involved in the procurement process declare all factors responsibly before the process begins. This ensures that no parties will influence the selection criteria of suppliers or provide dishonest information, and the procurement process will be duly respected by all

parties concerned with HEI 2 (UKZN Procurement and Contracting Policy, 2021: p. 17-18). The key principles of ethical conduct under the Procurement and Contracting Policy are:

- ***Equal Treatment*** – All procurement staff/officials must be sure to treat all suppliers and potential suppliers equally and equitably. No preferential treatment is to be given to any supplier or potential supplier no matter the circumstances.
- ***Accountability*** – By the order of the Council, all procurement staff /officials and end-users must be judicious and truthful in their use of university funds, property, and services in ensuring that procurement procedures and policies are adhered to with that of the procurement system. The accountability will be held by their line managers and thereafter Council at the ultimate stage.
- ***Openness*** – Procurement staff/officials, end-users, and finance officials are permitted to provide relevant information if such information is requested under the request to access information of the Promotion of Access to Information Act (PAIA) 2000 as set out in the PAIA Manual.
- ***Confidentiality*** – All information that is the direct property of HEI 2, its service providers, or suppliers, must at all times be secured with great care and confidentiality. No information regarding tenders or contracts whether concluded or in the draft form must be released in any form (UKZN Procurement and Contracting Policy, 2021: p. 19-20).

3.5.2.1 Reach Values of HEI 2

In 2015, the Vice Chancellor of HEI 2 at the time, Dr Albert Van Jaarsveld, sanctioned and authorised that the five (5) core principles of REACH become a way for all employees to work together harmoniously, particularly with regard to behaviour and action, when dealing with students and clients at an institutional level, towards reaching strategic goals of the university - that the client always comes first. HEI 2 aims to be a completely transformed academic institution based on a clear knowledge of its goals for all-encompassing and wide-ranging change reinforced by shared values. By 2016, REACH was fully integrated into all functional areas of the university. These values are to serve as a background structure for all its

endeavours. Behaviours and actions of all employees will display these principle values, which are:

- **Respect:** To treat each other as equals with shared respect and courtesy.
- **Excellence:** To exhibit effective leadership and worthy quality in all activities that are undertaken.
- **Accountability:** To be in control and responsible for all tasks and behaviours taken towards all stakeholders, both internally and externally.
- **Client Orientation:** On an ongoing basis to clearly fulfil and satisfy all the needs of clients of the institution.
- **Honesty:** To carry the role and duty of HEI 2 with truthfulness, honour and to always adhere to deliver good control and governance.

3.5.3 Procurement Policy Discussion of HEI 3

In 2020, HEI 3 amended, authorised, and gazetted its SCM procurement policy, which will be revised, should it be required to do so. The procurement division falls under the SCM department. Thus, this policy was named the SCM policy. Still in review, HEI 3's principal policy statement is to: advise the University in acquiring goods and services in a fair, transparent, equitable, competitive, and cost-effective manner (Unizulu SCM Policy, 2020: p2). HEI 3 follows the 1997 Higher Education Act 101 as modified. State subsidies, student fees, and grants fund its function. It does not have to comply with the Public Finance Management Act (PFMA) Regulations for Supply Chain Management (SCM) since it is not mentioned in schedule 3. (PFMA). HEI 3 follows the PFMA's SCM framework for good governance, openness, justice, efficiency, and cost-effectiveness. HEI 3 developed a thorough procurement policy. The policy establishes a goods and services acquisition system. These products must be fair, equal, transparent, competitive, and affordable. It must encourage Broad-Based Black Economic Empowerment and use preferential procurement where feasible while meeting value-for-money goals. Contributes to regional and national growth by enabling efficient and cost-effective procurement of products and services for university stakeholders. The policy covers demand, acquisition, logistics, risk, supply chain performance, and disposal management for all products and services. Capital expenditure and consulting are included. Continuous improvement may need more SCM components.

The policy must establish internal operational processes supporting the proudly South African campaign to ensure that, all else being equal, local suppliers are preferred. To foster mutual trust, respect, and an atmosphere where business may be done honestly, fairly, and reasonably, all workers must abide by ethical standards. If someone violated procurement laws during the procurement process, the Executive Director of Finance, acting with the Vice Chancellor's approval, must revoke the contract.

3.6 CHAPTER SUMMARY

The accountability of the procurement system in national and provincial ministries has been deemed inadequate, as shown by the views and conclusions of the Auditor-General. The procurement system in South Africa is plagued by issues of fraud, corruption, and maladministration, leading to detrimental consequences for both public institutions and people (Van Staden, Fourie & Holtzhausen, 2022).

The absence of regulations pertaining to power may result in the erosion of public trust and the potential for the misappropriation of public resources. Hence, it is imperative to have a zero-tolerance approach against corruption, irrespective of whether it occurs at an individual or governmental level. Systematic corruption occurs when it manifests at the political level or permeates higher positions. According to Mubangizi (2020), the phenomenon of corruption may be considered systemic when it is seen throughout many political offices and at all levels of government. The prevalent instances of corruption in public procurement and business settings often include acts of bribery and fraud. Bribery and fraud may be attributed to factors such as political influence, the absence of well-defined regulations, and conflicts of interest (Koto, A. and Kanjere, 2021).

In the chapter to follow, the constructs of the study and the theoretical and conceptual frameworks of the study shall be discussed. A review of the literature on the frameworks will shed light on the constructs of the study.

CHAPTER FOUR

LITERATURE REVIEW – PART C

(Conceptual and Theoretical Frameworks of the Study)

4.1 INTRODUCTION

This chapter of the study will present detailed literature on the theoretical and conceptual frameworks. It will further provide an all-encompassing discussion of the constructs *people*, *process* and *technology* and their sub-constructs that were utilised in the research instrument at fulfilling the research objectives of the study. The conceptual understanding of the role that 4 IR technologies play in procurement will be well explained. It will position the study into its context and lays the foundation for the empirical study.

4.2 THEORETICAL FRAMEWORK

Theories are expressed, contextualised and conveyed to describe and understand phenomena in research. In some instances, theories are also formulated to challenge and further lengthen present knowledge within the limits of norms and expectations. A theoretical framework is an edifice that holds and backs the theoretical glue of a study (Abend, 2008: p. 174). For this study, the theoretical framework discussions will address concepts of public procurement within the context of HEIs, a collection of definitions in unpacking each theory and its relevance to the study together with related scholarly literature that is in existence. The theoretical frameworks will reveal and determine an understanding of the theories and concepts most relevant to this study, which additionally relate to the broader areas of knowledge to be considered (CohenMiller & Pate, 2019: p. 1213). Occasionally, the theoretical framework for a specific is commonly not easily found within literature, pertinent keywords must be searched in line with the concepts of a study. By focusing on precise variables, the theoretical framework can be used to limit the choice of appropriate data and match the variables to the relevant literature.

Furthermore, it simplifies the understanding of variables and concepts in accordance with specified definitions and forms new knowledge by authenticating or stimulating theoretical expectations (Allen, 2015: p. 451). In this study, the theoretical frameworks will bring together and describe the theories that clarify why the research problem of the study exists. As expressed and articulated by Glanz, (2017: p. 10), “Theory, research, and practice are part of a continuum for understanding the determinants of behaviours, testing strategies for change, and disseminating effective interventions”. These three explanations are undistinguishably intertwined. Theory aids researchers to term what they see, comprehend, explain relationships, and make sense of human interactions. This awareness of understanding increases the body of knowledge in the field of study and provides a basis for added theorisation, investigation, and understanding (Glanz, 2017: p. 11).

In this study, three (3) theories shaped the theoretical framework. Research at this level required the theoretical framework to make a significant contribution to creating new knowledge in the specific field. Academics and practitioners in the field can use this new knowledge in generating new improved ways of completing tasks and imparting this to aspects of edification. There was a choice of three theories. Each theory provides a deeper supply chain lens into each of the three constructs in the conceptual framework that is to be further developed. The alignment of each theories construct was used in building up the conceptual framework and the three (people, process and technology) constructs of the study. The application of each theory shall aim to provide concrete academic depth to the constructs of the frameworks. The researcher intends to unpack the relevance of the three theories concisely, as well as to briefly explain how each lends itself to each part of the study’s conceptual framework.

4.2.1 Theory 1: The Dynamic Capability Theory [PEOPLE]

The dynamic capability (DC) theory was introduced by Teece, Pisano, and Shuen (1997) to help organisations understand their employee and management capabilities in times of change and adaptability for survival. In the early 1990s, organisations saw a slow and steady radical change towards the use of technology in daily tasks. A further change occurred in organisations understanding the rising impacts of competitive advantage. Organisations and their employees must be capable in the process of learning and completing daily tasks. Through well-defined

capabilities, adaptiveness and innovation on the part of the employees, this theory highlights that employees are one of the important building blocks for meeting new challenges by having dynamic capabilities (Teece, Pisano, & Shuen, 1997, p. 515). Teece (2007) reintroduced the concept for applied purposes for practicality a decade later. Teece (2007) postulated three primary high-level capability clusters: sensing, seizing, and transforming. These are the critical processes for organisations and management if they are to understand where markets and technology are headed, design a strategy to capitalise on it and restructure the organisation if needed to realise the vision.

According to Iansiti and Lakhani (2020), digitalisation in the twenty-first century is allowing a new kind of ordinary capability that is less reliant on old operational limits (Iansiti & Lakhani, 2020). Digital systems are more easily scaled and transformed, giving competitors a movable target. Ordinary capabilities, however, are not in themselves a basis for more than transitory competitive advantage and can often be outsourced, at least where there is strong competition and a proper legal framework enabling markets to function, for the many companies that remain dependent on more traditional labour and physical capital. According to Adner and Helfat, (2003), dynamic capabilities must be established since they cannot be purchased. They need management cognition and learning, which contributes to this. They may be partly ingrained in organisational practices that have their roots in the culture and history of the business. As per Gratton and Ghoshal (2005), businesses with high dynamic capacities also often have distinctive "signature processes". Teece, (2016) asserts that entrepreneurial management is necessary for strong dynamic skills. This implies that managers must be active in the creation and testing of theories regarding the new market and technical trends, the creation and improvement of new business models, and the coordination of the required resources both within and outside the organisation. And the whole company has to adopt this forward-thinking, innovative thinking. Competitive advantage in dynamically changing circumstances is dynamic capacity. Dynamic capability has the most explanatory power when a partially foreseeable technological change is about to transform market competition. It has less power when dynamic capabilities are not undervalued or scarce; when change is unforeseeable; when change is easily foreseeable; when the effect size of new capabilities is small; in industries subject to repeated technological shifts; and in markets that reward short bursts of extraordinary performance (Denrell & Powell, 2015).

4.2.1.1 Criticisms of the Dynamic Capability Theory

- I. The definition of dynamic capability varies widely among academics and researchers. Empirical dynamic capability research has failed to develop an agreement on an empirically based definition of dynamic capability. There is no uniform conceptual definition of dynamic capacities, and the principal emphasis of its notion remains conceptually unclear to a considerable degree, requiring additional attention in future study (Bleady, Ali, & Ibrahim, S.B., 2018: p. 13).
- II. The function of dynamic capabilities in competitive advantage, establishes the circumstances that make them useful by defining their link to resources and market positioning, and analyses the phenomenon's kinds and many degrees. However, although gaining such capabilities is beneficial, their efficacy is limited. The limitation stems from how key competencies are defined and implemented throughout an organisation (Collis & Anand, 2019).

4.2.2 Theory 2: The Systems Theory [PROCESS]

An organisational setting and managerial applications should be interrelated and interdependent to achieve agility, flexibility, and responsiveness and, a systems approach views the organisation as a whole and all of its parts and subsystems make up the whole. Ludwig von Bertalanffy first introduced the systems theory in 1968, and since then it has gone through many adaptive variations of understanding and practice organisations/institutions and systems. Since the 1970s the system theory began its dominance in research centred around organisations and their supply chains, since 1985 it played an effective role in describing and understanding the role of effective processes in supply chain systems (*agility, flexibility and responsiveness*) and continues to date (Lavassani & Movahedi, 2010, p. 11). Yourdon's (1989) work was very relevant. He derived the following four concepts from his study findings:

1. The less adaptable a system is to a changing environment, the more specialised or complicated it is.
2. As the system grows in size, so do the resources necessary to sustain it, with the rise being non-linear rather than linear.
3. Systems often include other systems or are components of bigger systems.
4. Systems expand in size as well as structural complexity throughout time.

These concepts are not just applicable to information systems, but the authors argue that they are also applicable to supply chains.

A system is a collection of distinct but interrelated pieces that work together to achieve a shared goal. The system must be configured with proper communications and controls to promote interactivity among important sections in order to accomplish the shared aim. The purpose of an organisation must be consistent with the objective of the system. While an organisation (or people inside an organisation) enhances its performance, the system's performance is optimised (Wang, Qiao, & Li, 2020: p. 290). From raw material extraction through delivery to the final end user, the supply chain operates as a system. Those involved are part of a larger system that must provide in full and on schedule. In recent years, the Supply Chain has achieved near-celebrity status (Esper, 2021: p. 101). To meet customers' expectations, the whole supply chain system should work in sync and seamlessly.

4.2.2.1 Criticisms of the Systems Theory

- I. Managers using the systems approach are not concerned with achieving a single objective, but rather with ensuring that all components of an organisation work together to achieve a common purpose. They do not prevent managers from trying other tactics while searching for ways to better their firms, according to this notion. That may be a strength, but it may also be a disadvantage if a manager requires a more rigorous, prescriptive structure. In the event that such an issue emerges, systems theory has served as the foundation for various management theories such as the balanced scorecard and comprehensive quality management. Managers might turn to these for direction (Sridharan, 2023).

- II. Gripsrud, Jahre, and Persson (2006, p. 645) investigate the historical backdrop of the application of systems theory to SCM and logistics especially. They contend that neoclassical economic ideas dominated from the 1950s through the 1970s. During this time, the emphasis was on "total cost" and "compromises." Since the 1970s, however, systems theory has dominated explanations of the scope and operation of organisational supply chains. Post-1970s period itself is marked by a change of emphasis. Prior to 1985, the emphasis of the theory was on cost-service and trade-off equilibria, but by 1985, the theory shifted to characterise the efficiency and the function of processes. This era continues until the present day (Lavassani & Movahedi, 2010).

4.2.3 Theory 3: The Technology, Organisational and Environmental (TOE) Theory [TECHNOLOGY]

The technology, organisational and environmental (TOE) theory is a theoretical framework that depicts how the implementation of technological innovations is influenced by organisational and environmental contexts (Tornatzky, Fleischer & Chakrabarti, 1990, p. 55). Over the last decade, there have been a few summarised versions of the TOE framework (Awa, Ukoha, & Igwe, 2017, p. 4). In this study, the TOE theoretical framework will focus on part three of the construct in the conceptual framework. The TOE framework, as first given in IT adoption studies, offers a valuable analytical tool for examining the adoption of many sorts of innovations. Although exact elements discovered within the three contexts may vary among investigations, the TOE framework has a strong theoretical foundation and consistent empirical validation (Hwang, Huang, & Wu. 2016).

The TOE theoretical framework suggests that an organisation should be consistent with its environment and the demands of the environment, and that an organisation's strength should be decided by both internal and external elements such as the environment, the size of the organisation, and its organisational strategy (Bryan & Zuva, 2021: p. 140).

4.2.3.1 Criticisms of the TOE Theoretical Framework

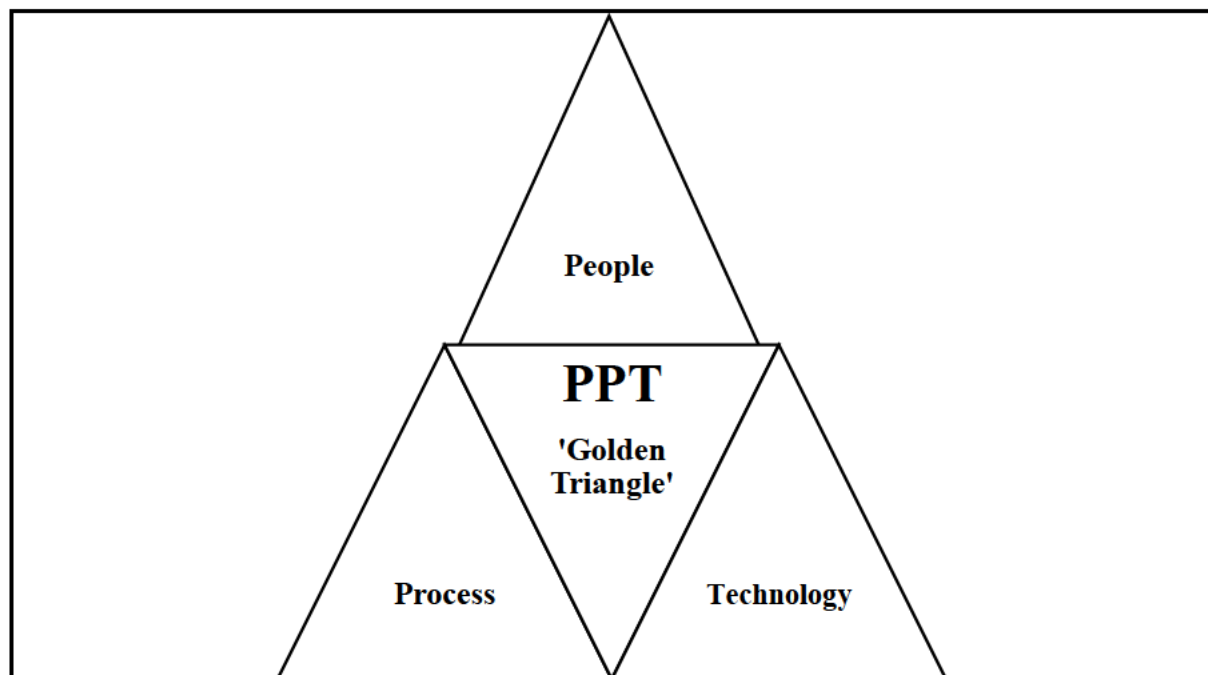
- I. Only one focus enterprise has utilised the TOE paradigm to analyse inter-organisational system adoption. How several businesses decide on a new system is not studied. How do numerous enterprises' technical environments affect adoption? How do diverse firm organisational environments affect adoption? Do corporations regard the environment differently? Does a firm's value chain position affect how it views new technologies? Each of these concerns might help researchers enhance the TOE framework to boost its explanatory power or uncover its limitations. In an era of increased organisational interconnection, such a study would also provide practitioners with useful insights (Baker, 2012).
- II. According to Masood and Egger (2019: p. 21), although the technology environment is important for a successful Industry 4.0 implementation, the organisational side of the implementation is also important for the industry. In contrast to a sample of academic publications analysed by a systematic literature review, academia concentrates on technological obstacles rather than organisational challenges, while industry focuses on organisational concerns, which is a limitation in the implementation of the TOE Framework.

4.3 CONCEPTUAL FRAMEWORK

In this study, the People, Process, Technology (PPT) Model will be used as the relevant conceptual framework, as the study will be an in-depth investigation into a university's public procurement system. Constructed in the 1960s by Leavitt Harold and later adapted in the early 1990s, this model will measure the impact of the public procurement system through the three constructs. This conceptual framework has been very useful in studies where systematic studies have taken place; it will further integrate the context of the current situation at the selected HEIs of the study, including all users of the public procurement system (Leavitt, 1972). The PPT will visually depict and present an understanding of the procurement relationships, processes, procurement resources, and technological programmes that need to be considered in a study of this kind. This model will give the study a strong foundation in terms of identifying articulated gaps in the systems' *people*, *process*, and *technology*.

In terms of understanding how the PPT model can drive procurement and technological digital transformation, the variables of the model will be discussed. The diagram below depicts the variables in the model:

Figure 4.1: People, Process and Technology Conceptual Framework



Source: Adapted from, Leavitt, 1972

4.3.1 People

People are debatably the most important resource in an organisation. They drive all activities and processes to completion, but often are not acknowledged and are overlooked and receive less attention for the role that they play (Khan & Bokhari, 2018, p. 3).

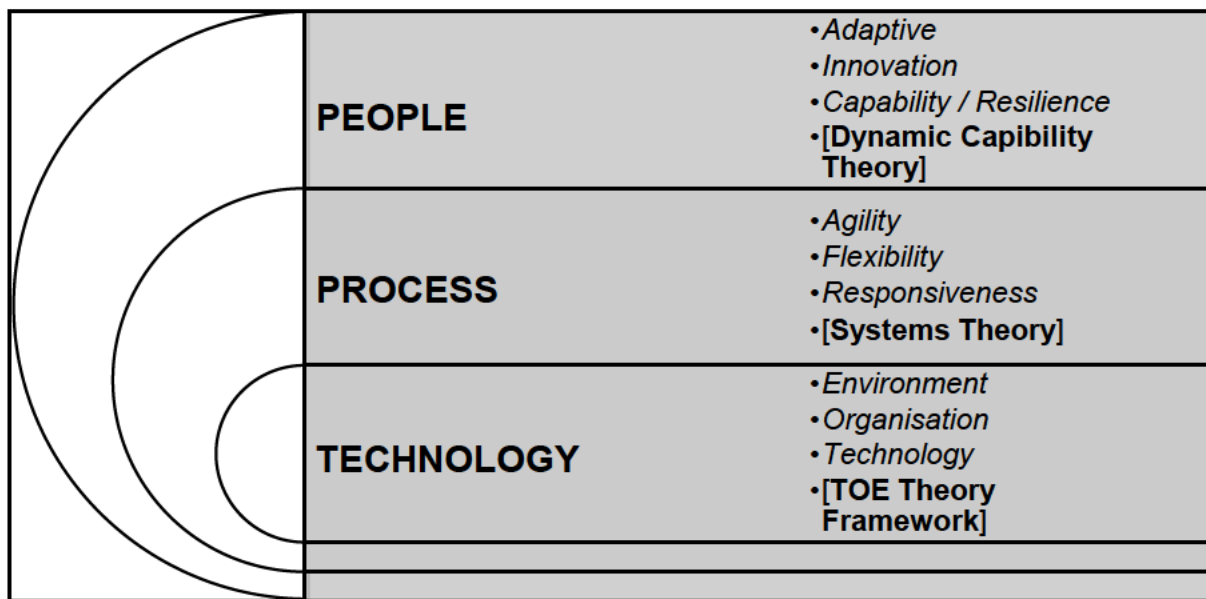
4.3.2 Process

Processes are all the steps and actions required to achieve a task. This is a 'key' part of the PPT framework. Without a proper process in place, people (employees) will be lost and unable to navigate through their daily tasks efficiently (Prodan, Prodan, & Purcarea, 2015, p. 485).

4.3.3 Technology

This variable is often given the most amount of attention, but there should be a balance between all three variables. Technology has a significant impact on the management of organisations/institutions (Swaid & Wigand, 2007, p. 5).

Figure 4.2: Proposed Conceptual Framework



Source: Author Created – Adapted from Leavitt, 1972

The constructs of the conceptual framework have directed the research objectives of this study. The constructs will be used to operationalise and achieve the research objectives. This conceptual framework will be further built on, with sub-constructs in each construct (*People*, *Process*, and *Technology*). The aim is to help HEIs align the three constructs to the procurement system and further allow for aspects of the external environment to be investigated from the lens of the exploration of the internal and external environments – through people, processes and technology. This conceptual framework was adapted from the existing PPT conceptual framework developed by Leavitt (1972).

People: People drive and complete processes. They also use technology and form a basis for the business. Hiring well-qualified people with the right fit of experience is important in driving change and adaptations that an organisation wants to move towards. In procurement, people add value – as without people understanding and driving processes even the most advanced technologies and processes in systems will not succeed (Khan & Bokhari, 2018, p. 4–5).

The people construct of the conceptual framework will be further broken down into sub-constructs and will look into the context of people in terms of:

I. Adaptive

Because of the recent outbreak of COVID-19, the global supply chain has been severely disrupted, which puts businesses' capacity to survive and establish resilience to the test. Understanding on the part of employees is the first step in implementing the notion of adaptive supply chain management. The resilience of adaptive supply networks has never been put to the test in the face of a significant interruption to the supply chain, such as a pandemic. The ability to adjust to changes in a dynamic and unpredictable environment is what we mean when we talk about adaptability (Ongkowijoyo, Sutrisno, Teofilus, & Hongdiyanto, 2020: p. 95).

As a result of the steadily rising level of difficulty in the job being performed, modern organisations must put an even greater emphasis on the workers' capacity to adjust to changing circumstances in the workplace (Cullen, Edwards, Casper, & Gue, 2014: p. 272). Adaptive understanding is not a prescriptive definition of how employees need to adapt to their workplace or job roles, according to the findings of a study that has been completed by Maden-Eyiusta, Yalabik, & Nakiboglu (2021). Instead, adaptive understanding is meant to further consider the psychological aspects that come with employers trying to understand how to adapt to their job roles. As a result of the steadily rising level of difficulty in the job being performed, modern businesses must put an even greater emphasis on the workers' capacity to adjust to changing circumstances in the workplace (Cullen, Edwards, Casper, & Gue, 2014: p. 272).

The connection between a person's inner world and their external environment is what leads to the development of adaptability in employees. These worlds are intricately connected to the particular responsibilities and circumstances of employees. Further research has shown that adaptability is constrained by the cultural milieu in which it operates (Yang, Feng, Meng & Qiu, 2019: p. 1029). Frank, Autor, Bessen, Brynjolfsson, Cebrian, Deming, and Rahwan (2019: p. 6533) agree that social and individual adaptability is required. Even if there is no agreement on the exact skill requirements for employees to adapt to technology, on a task-by-task basis, both experts and policymakers agree that many individuals need to alter their profession and incorporate technology into their job profiles.

Complying with the Fourth Industrial Revolution's competency requirements is hampered by a number of interconnected challenges. On an individual level, the low levels of adult education participation hinder the development of technological abilities. According to the OECD's (2019) Employment Outlook, one in five individuals did not engage in training given by their company due to a lack of motivation or a lack of interest in the subject matter. It was also noted that the difficulties people had throughout training diminished their enthusiasm for training (OECD, 2019). Adults with low levels of education often do not engage in education and training owing to the cost of the programme, a lack of time at work or at home, or inadequate prerequisites. Though many studies have explored the adaptability of workers, researchers have used a variety of terminology to define their capabilities when confronted with unforeseen changes. No study has compared and explained the many words and notions of employee adaptability to date. This void has perplexed human resource development scholars and practitioners, preventing them from developing a comprehensive grasp of workers' adaptability to new and changing situations (Park & Park, 2021: p. 5).

II. Innovative

Multiple viewpoints have been used to characterise supply chain innovation; nevertheless, the majority of the earlier conceptualisations are based on Rogers' (1995, p. 11) definition: "*Innovation is a newly perceived concept, activity, or item by an individual/employee or other unit of adoption.*" In 1998, Afuah described innovation as "*the process of converting opportunity into new ideas and implementing them in widespread usage.*" Innovation allows the creation of new technical skills and knowledge that may aid in the development of new

customer goods and/or services. Innovation emphasises idea development, but from a supply chain viewpoint, it is neither useful nor recognised significant until it leads into something valuable for consumers. Chesbrough (2003) emphasised the significance of innovative thinking as a catalyst for invention; yet, the supplementary literature on innovation itself emphasises the significance of procedures and technology in generating successful ideas.

In today's volatile economic climate, the notion that innovation enables businesses to acquire a competitive edge over their rivals has gained widespread acceptance. However, putting this into practice is far more difficult than it seems. According to Zhao (2006, p. 106), nearly every firm emphasises the necessity of innovation, and many are genuinely implementing it. However, only a select few businesses are genuinely capable of doing this.

Given the unpredictability and competitiveness of knowledge-based economies, innovation is crucial for organisations to survive and grow (Yuan & Woodman, 2010: p. 29), and workers are the key actors in putting these behaviours into practice. Employee innovation is a complicated process that combines idea generation, concept promotion, and idea realisation (Scott & Bruce, 1994: p. 585). It includes issue identification, support seeking for problem solution implementation, and the creation of goods or the provision of services. Employee training and experience serve as such organisational resources for innovation (van den Hooff & de Ridder, 2004: p. 119); yet, because workers' knowledge is hard to change, knowledge sharing is essential in businesses.

According to the findings of a research that was carried out by Che, Wu, Wang, and Yang (2019: page 238), the combination of coming up with new ideas and carrying those ideas out in practice is what leads to innovation. It is essential for people to get external information that is relevant and trustworthy in order to produce new ideas that are practicable and lessen the uncertainty associated with execution. According to the outcomes of the study conducted by Nguyen, Siengthai, Swierczek, and Bamel (2019: page 740), the findings imply that overall organisational culture and organisational commitment are positively and substantially associated with employee innovation. When examined more closely, it is discovered that three of the five aspects that make up an organisation's culture—its goal, its flexibility, and its well-being—are shown to be explicitly and strongly associated with employee creativity.

III. Capability

According to Grant (1991: p. 115) and Lewin and Massini (2004: p. 210), a capability is a set of practices or routines that allow employees or organisations to make effective use of their available resources in order to accomplish a certain objective. Organisational capabilities are described as "complex bundles of skills and collective learning, executed via organisational procedures that guarantee superior coordination of functional tasks," according to Day's (1994: p. 38) definition of organisational capabilities. According to Teece et al. (1997), organisational capabilities may be defined as a collection of distinct processes, technologies, and assets that are held by an organisation in order to retain a sustainable competitive edge. According to Dosi, Faillo, and Marengo (2008: 1168), organisational capacities provide businesses the ability to cope with and find solutions to business difficulties, demonstrating features of continuity in their ability to continue their operations. Therefore, organisational capabilities are resistant to change; yet, they are amenable to development via continuous improvement over a period of time in order to offer the organisation a better position in the competitive landscape.

In the present global economic context, Vidal-Salazar, Hurtado-Torres, and Matas-Reche (2012: p. 2689) note that in order for businesses to achieve long-term competitive advantages, they need to be aware of the capabilities that set them apart from their rivals. In this view, employee training may be able to encourage the development of particular skills connected to the company's human resources. These capabilities might enable this distinction, and hence the desired competitive advantage. Zatzick and Iverson (2006: p. 1010) discovered that ongoing investment in capabilities as part of high-performing working conditions maintained employee productivity and allowed organisations to avoid productivity losses when compared to workplaces that quit such expenditures. Employee capabilities are one of the most essential factors influencing business success because they represent an employee's sense of his or her knowledge, skills, experience, network, capacity to deliver outcomes, and potential for advancement (Bontis & Serenko, 2007: p. 35). Similarly, studies indicate that downsizing as a consequence of spending cuts would result in the loss of essential employee capabilities and may result in the firm's quality, productivity, and effectiveness worsening (Schmitt, Borzillo, & Probst, 2012: p. 60).

Most organisations seek to give appropriate assistance to core employees engaged in service interactions so that they may provide services to consumers efficiently and effectively. Organisations also give strategic assistance to enhance the knowledge and abilities of their employees, the most important resource for achieving and maintaining competitive advantage (Lee, Hong, & Kim, 2003; 2016: p. 160). According to the findings of this research by Ologbo, Nor and Okyere-Kwakye (2015: p. 108), the total innovation capabilities of a corporation cannot be attained in isolation without the individual innovation skills of the workers working for that organisation. Therefore, the overall business innovation capabilities are formed by the sum total of the innovative skills possessed by the company's many employees.

According to the findings of the research conducted by Stensaker and Meyer (2012: p. 122), it seems that experience gives employees the opportunity to build their change capabilities, which in turn results in responses that are less extreme and more constructive to future change attempts. On the other hand, one's exposure to adversity might result in the development of loyal behaviours and attitudes that are founded on cynicism. These results contribute by identifying experience-based competencies among those who have benefited from change. When employees have a significant amount of experience with change, managers need to modify their way of thinking about change. The prevalence of more loyal behaviour is something that managers need to keep an eye out for. They should also be aware of the role that they play in creating a good experience with the process, which is a prerequisite for establishing capability skills at the employee level.

Process: A clear, concise, and effective process will get employees to steer through their daily tasks with no interruptions and they will then use the new technologies with purpose. In procurement, employees become inefficient without a proper process in place to support their decisions. But when proper processes are in place people (employees) understand the fit into the workflow and have a good understanding of the system and its operations. With strong processes present, the procurement system is given structure, including well-established supplier relationships (Prodan, Prodan, & Purcarea, 2015, p. 486).

The *process* construct of the conceptual framework will be further broken down into sub-constructs and will look into the context of the process in terms of:

I. Agility

A broad variety of characteristics related to operation management, such as the availability of information and communication technology infrastructure, enough knowledge and decision-making capacities of people, engagement of people, and adequate support, are essential to agility (Burgess, 1994: p. 25). The ability to swiftly adjust and respond to unforeseen changes both inside and across organisations is referred to as agility (Aziz & Zailani, 2011). According to Maltaverne (2016), agility is the capability to both increase the number of favourable results (opportunities) and limit the number of unfavourable outcomes. The ability of an organisation to function effectively in a highly competitive environment is closely correlated with its level of agility. The goal of agility is to enhance the flexibility of companies in an environment that is both variable and constantly changing (Nicoletti & Nicoletti, 2018: p. 16).

Employee participation provides the employee with the abilities, knowledge, and resources necessary to contribute their own ideas for organisational renewal, to participate in the making of well-informed strategic decisions, and to effectively implement those decisions through the equitable distribution of power and information, as well as the development of motivators (Bode and Singh, 2018). Employee participation offers the potential for supporting the underlying pillars of dynamic capabilities, namely a company's ability (1) to sense opportunities and threats, (2) to seize these opportunities by mobilising resources and routines, and (3) to reconfigure its base of resources. Employee participation offers potential for supporting the underlying pillars of dynamic capabilities in the accompanying ways: (Teece, 2014: p. 15).

Increasing the agility of the procurement process, thus, becomes highly crucial. Improving procurement's business agility was rated as the third most significant aim, just behind cost reduction (Burnson, 2015). (Nicoletti, 2018: p.120). In addition, Maltaverne (2016), said that now is the ideal moment to place agility at the very top of the senior management's priority. In order for a company's procurement department to become more agile, the department's competencies will need to be aligned (*People, Process, and Technology*). Al Awadhi and Alshurideh (2022: p. 560) made a passing mention of the fact that in the present era, the necessity to leverage government procurement processes through the adoption of sustainable

procurement and procurement agility has particularly gained deep power in developing economies across the globe.

II. Flexibility

According to Suarez, Cusumano and Fine (1995: p.27), high levels of competition in the market might induce uncertainty, which, in turn, leads consumers to demand a greater degree of adaptability to their fluctuating needs. Because of this circumstance, it is difficult for the supply chain of the company to originally foresee the requirements of the consumers, and the company must further adapt its business process in accordance with the requests of the customers. As per Gong (2008: p. 77), many studies that have been conducted since that time have focused on the significance of flexibility as a component that contributes to the competitive advantage of businesses. Because it helps businesses to respond quickly and cost-effectively to shifts that may occur in the particular client requirements they have.

A significant aspect of supply chain flexibility is known as sourcing flexibility. According to Kumar, Fantazy, Kumar, and Boyle (2006: p. 310), this aspect can be defined as "the ability of the supply chain partners to control the supply levels (increasing or decreasing) economically and with no additional time to meet customer demand". According to Stevenson and Spring (2007: p. 690), the majority of the previous research has a narrow definition of supply chain flexibility, and it just portrays flexibility as a reactive method to deal with uncertainty. They point out that this is a problem. The literature on manufacturing flexibility gave rise to supply chain flexibility, and as a result, supply chain flexibility is mostly limited to a manufacturing environment at this time (neglecting the role of services). Empirical research often takes the form of a cross-sectional postal questionnaire that is administered at the business level. This kind of research does not investigate the inter-organisational components that contribute to supply chain flexibility, leaving a gap in research to be looked into.

Sourcing flexibility is an essential component of supply chain flexibility. When it comes to flexibility of this kind, the role of the supplier is really important. Companies have come to a widespread realisation that it is important to form alliances between their business organisations and partners both upstream and downstream in the supply chain. A number of proactive initiatives have been made by companies in order to remove impediments to the

formation of partnerships both inside and across their own organisations. These activities are being seen as initiatives to lessen related uncertainty and also strengthen control over supply and distribution channels, according to Li and Qi (2008: p. 14).

Bag (2016) highlighted the key impediments to the construction of a sustainable supply chain network and significantly expanded the existing body of information. Practitioners of supply chain management are now looking for novel approaches to incorporate flexibility into procurement procedures and build the supply network with improved risk management in mind. Skills of flexible procurement personnel favourably affect supplier integration. This is a pressing issue that procurement managers are now dealing with. Collaboration with suppliers requires a diverse set of talents, including technical know-how, the ability to communicate effectively, and management experience.

Positively affecting the supply chain operation is a network of component product and service providers that are adaptive, quick, and flexible in response to internal or external factors (Chen, 2019: p. 108). Flexibility and adaptability are two key characteristics that need to be added to a standard supply chain in order to create an agile supply chain. In this scenario, the source of flexibility is not just one individual but rather the collaborative effort of all of the actors in the supply network (Makudza, Jaravaza, Govha, Mukucha, & Saruchera, 2023: p. 12).

III. Responsiveness

The responsiveness of an organisation's operations system, its logistics process, and its supplier network is summed together to equal the responsiveness of the organisation. In a competitive environment that is always shifting, it is necessary to establish organisations and supply chains that are substantially more adaptable and quick to react than those that are already in place (James-Moore, 1996: p. 4). According to research conducted by Duclos, Vokurka, and Lummus (2003: p. 450), supply chain responsiveness is defined as the capacity of promptness as well as the degree to which a supply chain can handle changes in consumer demand.

According to Prater, Biehl, and Smith (2001: p. 825), the amount of responsiveness in a supply chain rises along with the levels of speed and flexibility present in the chain. As per Holweg (2005: p. 98), supply chain responsiveness is defined as the capacity of the supply chain to promptly answer changes and demands in the marketplace. This definition suggests that speed and flexibility are necessary components of supply chain responsiveness. A responsive system is one that is also adaptable for this reason. Partners in organisational relationships are said to be responsive when they engage in such a manner as to understand and appreciate one another, as well as provide support to one another in the pursuit of essential personal needs and objectives. Both the relationship and its individual members benefit from and are strengthened by responsiveness (Reis & Clark, 2103).

According to the findings of research that was carried out by Rajab and Machelule (2016), the responsiveness of suppliers had a positive and substantial influence on the performance of procurement. As a result, the degree to which suppliers are responsive plays a significant part in the overall improvement of procurement performance. The research conducted by Goyal (2022) investigated how the management of public procurement was carried out during the pandemic. Specifically, a case study of India and China was analysed. The research showed that, in comparison to China, India, despite the existence of significant flexibilities, there was little divergence from standard procurement practices. This could be explained by weaker governance capacity and legitimacy, as both of these factors were found to be present in India. More allocative objectives, as opposed to structural ones, were established for procurement, and greater degrees of centralisation were applied for procurement.

Technology: In procurement, technology can efficiently support all processes to run smoothly. In the rapidly changing world of the 21st century, technology is seen as the binding factor that allows organisations/institutions to stay ahead in the value chain. While the value of technology is evident in procurement, the challenges lie in the upfront capital investment of new technologies (Swaid & Wigand, 2007, p. 5-6). The TOE theoretical framework suggests that an organisation should be coherent with its surroundings and the demands of the environment and that an organisation's strength is affected by both internal and external elements such as its size, its strategy, and its surroundings (Teo, Lin, & Hung Lai, 2009: p. 975). Technology, organisational structure, and environmental conditions were identified as the three primary drivers that impact organisational adoption. It is vital that while making a choice, one takes

into consideration the following three influential factors: technological advancement, the circumstances of the organisation, the re-configuration of the company and the organisation, and the industrial environment (Pan & Jang, 2008). Within the context of TOE, technical development provides an organisation with an overview of the technologies that are at its disposal. The context of the organisation provides an overview of the features of the organisation, while the context of the environment provides an overview of the business field, which includes the industry, other rivals, rules, and interactions with the government (Xu, Zhu & Gibbs: 2004: p.15).

The *technology* construct of the conceptual framework will be further broken down into sub-constructs and will look into the context of technology in this study.

I. Technological Context

This sub-construct will unfold the study further into the adoption of new technologies. Several different theoretical frameworks take into account technology as a factor that determines the extent to which new technological advancements are adopted. In order for the company to successfully integrate the new technology, they need to have a solid information technology infrastructure, as well as the technical skills and user time of its employees. Companies that already have a strong technological foundation are more likely to successfully implement new ideas. The level of technological advancement that an organisation is able to undertake is directly related to the amount of technology that is already present inside that organisation. It is not sufficient for an organisation to only have access to technological resources. It is not enough to just possess the necessary hardware in order to be technologically competent; an organisation must also be staffed with creative and skilled individuals who are capable of keeping it one step ahead of its rivals (Baker, 2012, p. 235).

II. Organisational Context

The organisational context relates to the business's features and resources, such as employee linkage structures, intra-firm communication systems, firm size, and the quantity of spare resources. This setting influences adoption and implementation choices in a variety of ways. Mechanisms that connect internal organisational subunits or bridge internal borders foster

creativity. Adoption is connected with the existence of informal connecting agents such as product advocates, boundary spanners, and gatekeepers. Cross-functional teams and personnel with official or informal connections to other departments or value chain partners are some examples of such processes (Borgman, Bahli, Heier, & Schewski, 2013: 4430).

III. Environmental Context

The environment component examines the factors of industrial structure, technology service providers, and environmental laws. Many claim that organisations in established and declining sectors are less inclined to embrace new technology, while organisations in quickly rising industries are more likely to do so. Fast-growing businesses use technology to increase output while lowering costs. Regulators decide whether or not an organisation may install certain technology to fulfil the requirements (Anfeles, 2014).

4.4 ROLE OF TECHNOLOGY IN PUBLIC PROCUREMENT SYSTEMS

As we are currently in the fourth industrial revolution in the 21st century, research completed and considerations around Industry 4.0 (block-chains, artificial intelligence, robotics, and other digital enablers), and it is important to identify and understand which procurement systems and supply-chain technologies should be improved on and changed for future success. These changes can imply cost savings, and technological transformations can redirect the institutions towards further efficiency. The Covid-19 pandemic has made institutions more aware of the need for virtual and computer-generated home spaces for employees (Mapanga & Garidzirai, 2021, p. 2). The pandemic has made countries all over the world more cognisant of the accurate and pivotal role that Industry 4.0 plays in sustaining systems, operations, and workflows in supporting the public and private sectors (Higgins, 2021, p. 1). We are in the midst of the Fourth Industrial Revolution, which is causing profound transformations in everything from manufacturing to supply chain management. Procurement is often overlooked in a vibrant, rising academic discipline. Regardless, procurement is critical in linking the firm with its ecosystem (Nicoletti, 2020).

A study by the Hackett Group (2017) found that 70–80% of senior management concur that digital transformation and Industry 4.0 will bring about central changes to the way in which organisations/institutions complete their daily tasks (Mapanga & Garidzirai, 2021, p. 2-4). At the time the study was conducted (2017), the Hackett Group confirmed that 40% of the sample size indicated that the institutions/organisations were ready to move into Industry 4.0, but management was slow to implement this change (Mapanga & Garidzirai, 2021, p. 2-4).

In South Africa, public procurement necessitates a paradigm change from the traditional purchasing practises that have been followed up until now. To be able to support this transformation, HEIs must see it necessary to adjust to new circumstances and come to terms with the fact that their public procurement processes will need to undergo technical developments and modifications.

4.4.1 Understanding Industry 4.0 (Fourth Industrial Revolution - 4 IR)

Initially, Industry 4.0 was conceived of as the fourth industrial revolution, but this understanding has developed over the years (Xu, Xu, & Li, 2018: p. 2944). The Fourth Industrial Revolution symbolises a major shift in the manner in which humans live, work, and interact. It is a new era of human progress, made possible by technological advancements comparable to those of the first, second, and third industrial revolutions. These developments are fusing the physical, digital, and biological realms in ways that provide both enormous promise and significant danger. This transformation is driving humans to reconsider how nations evolve and how organisations generate value. The Fourth Industrial Revolution is about more than simply technology-driven change; it is a chance to assist everyone, including leaders, policymakers, and people from all economic brackets and countries, in harnessing converging technologies to build an inclusive, human-centred future (World Economic Forum, 2022).

Procurement 4.0 adds value, visibility, and resilience to the supply chain. Visibility aids material planning, cutting lead times. Procurement 4.0 and its ideals are seldom discussed owing to complicated supply chain operations and multi-criteria decision-making. Procurement 4.0 adapts to different procurement needs. This may help organisations make difficult choices about 4 IR technologies in the supply chain by showing how they might improve procurement (Bag, Wood, Mangla, & Luthra, 2020).

4.4.2 4 IR Technologies – Procurement

The rapid development of digital technology is reshaping the supply chains of businesses and is on the fast approach of transforming the way in which the procurement function produces value. Hence, the ways in which procurement teams communicate with various stakeholders and the ways in which they produce outcomes are being reshaped as a consequence of new technological breakthroughs. The discussion to follow will identify and assess the various 4 IT type of technologies that are important for the use of in procurement 4.0.

I. Internet of Things

The Internet of Things is a network of physical objects that are digitally connected to sense, monitor, and interact within a company and between the company and its supply chain. This allows for agility, visibility, tracking, and information sharing to help plan, control, and coordinate the supply chain processes in a timely manner. The Internet of Things is a network of physical objects that are digitally connected to sense, monitor, and communicate within a business and between a business and its supply chain. This technology enables agility, visibility, tracking, and information sharing to help with the timely planning, control, and coordination of supply chain processes (Ben-Daya, Hassini, & Zied Bahroun, 2019: p. 4730). The enabling technologies of the internet of things generally comprise four primary levels in supply chain management which are as follows: (Borgia, 2014: p. 20)

Layer 1: Radiofrequency technology and sensors serve as a layer for data collecting.

Layer 2: Communiqué layer for stable and mobile networks

Layer 3: Service layer

Layer 4: Interface layer

It will be possible to save costs, simplify processes, and improve accuracy all throughout the supply chain if the Internet of Things technology is used. Sharing of information and maintaining openness at the appropriate intervals are required to achieve visibility in supply chains. This contributes to a higher level of trust in the supply chain (Al-Talib, Melhem, Anosike, Reyes, & Nadeem, 2020: p. 757).

II. Cloud Computing

Cloud computing is a model for providing ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (for example, networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or interaction from service vendors (Mell & Grance, 2011). Cloud computing is a fast-expanding area. It has sparked a lot of research interest. Zhou, Zhu, Lin, and Bentley (2012) sought to better understand how cloud computing might be used in supply chain management, as well as the associated advantages and obstacles. Chou (2015) investigated the potential advantages of cloud computing adoption in enterprises. He discovered that they are ease-of-use, convenience, on-demand access, adaptability, and little user administration.

Cloud computing is ideal for changeable processing needs since resources are only used when required. Procurement transactions and information are usually intermittent. The role of information systems becoming more process-oriented rather than technology-oriented, the substantial savings possible with large data centres, the spread of broadband Internet access, and virtualisation in computer application software becoming more standard all favour cloud adoption in organisations (Nicoletti 2016).

According to Pillay (2014), the following are the key benefits of cloud computing in a procurement context:

- Implementation of microsystems more quickly.
- Enhanced accessibility from any Internet-capable device
- Enhanced resilience
- Enhanced agility
- Reduced expenses
- Enhanced safety
- Reduced support and maintenance costs
- Release IT resources
- Authorisation of end-users
- The use of virtualisation technologies

- Costs and resources are shared
- The concentration of infrastructure

Artificial intelligence (AI), machine learning, and other data science technologies have emerged as very pervasive advancements in the 21st century. Artificial intelligence (AI) has shown considerable potential for several industries, ranging from the use of chatbots and virtual assistants to facilitate customer interactions, to conducting medical evaluations, language translation, credit scoring, and even more intricate applications in the realms of manufacturing and supply chain optimisation. The public sector in developing countries is a significant market for AI solutions. The importance of AI governance is particularly emphasised in the current context, where open government and the digitalization of public services are gaining traction. The use of artificial intelligence (AI) in the public sector starts with the consideration of public procurement choices, which account for a significant proportion of expenditure in many developing nations. Public procurement plays a crucial role in facilitating the integration of AI technology into the public sector (Nagitta, Mugurusi, Obicci, & Awuor, 2022: p. 1086).

III. Big Data Analysis

Big data refers to big data collections with vast, diverse, and complicated structures that are challenging to store, analyse, and visualise for subsequent processes or outcomes. Big data analytics is the practise of researching enormous volumes of data to find hidden patterns and secret connections (Sagiroglu & Sinanc, 2013: p. 44).

Technology in procurement operations is a means to link and shift connections, gain cost efficiency by optimising process, exploit procurement responsibilities, and improve skills and competencies (Pohl & Forstl, 2011: p. 235). It opens the door to new organisational configurations and analysis by requiring procurement and organisational integration and alignment, through the identification and translation of business competitive priorities into clear procurement actions that continuously align with business strategy (Ateş, Van Raaij, & Wynstra, 2018: p. 70).

However, the volume, variety, and velocity of data that play a role in the decision-making process throughout the procurement process are rapidly growing. Furthermore, the more strategic the procurement process got, the greater the need increased for making real-time, decisive judgements. The analysis of large amounts of complicated data in great depth offers unrivalled prospects for making advances in procurement value-adding, lowering costs (and avoiding fraud), and other related goals (Wang, Gunasekaran, Ngai, & Papadopoulos, 2016: p. 105). Valuable data may be retrieved to assist enhance many aspects of a firm, including business processes, staff training management, capacity planning, and supply network optimization (Roden, Nucciarelli, Li, & Graham, 2017). Big data refers to a set of technologies that allow the administration, organising, and use of data in a variety of ways, including the processing of bigger amounts of data in less time and with more accuracy (Busch, Mitchell, Lamoureux, & Karpie, 2017).

Procurement organisations operate in a variety of nations and across borders. Local and specialised demands of the firm's procurement responsibilities have led to irregular information technology automation and non-interoperable systems, limiting the visibility of data and information underlying procurement decisions and transactions. Big data and analytics are acknowledged as crucial future procurement solutions for enabling procurement decision-makers to access and use vast numbers of historical buying transaction contracts, price information, and supplier performance indicators (Carlsson, 2018).

IV. BlockChain

According to Beck, Müller-Bloch, and King (2108), a blockchain is a distributed database that allows for consistent validation and tamper-proof transactions across a network of users (called nodes). Several studies have shown that blockchain has the potential to reduce transactional anonymity, non-secure states, and questionability by providing a complete release of information on transactions and the supplementation of homogenous and validated facts among all members of the network (Naerland, Müller-Bloch, Beck, & Palmund, 2017). This is accomplished by distributing facts that are uniform and have been verified by all parties involved. Trust and decentralisation are listed as two major facets that require proper identification when examining blockchain technology (Seebacher & Schüritz, 2017). These two facets are briefly discussed as follows:

- Trust

The blockchain's decentralised operation hides the technology's most important quality, which is the immutability of each transaction. To be more specific, the network is protected by a protocol called proof-of-work, which eliminates the need for any third party to be involved in the process of verifying and recording transactions. Users of blockchain technology may utilise this protocol to assist them to avoid being dependent on third parties for the confidentiality of all of their transactions and assets. Because the source code for the whole technology is freely available to all participants, there is no possibility of an unauthorised person gaining access to the system (Hull, Batra, Chen, Deutsch, Heath, & Vianu, 2016).

- Decentralisation

Blockchain technology emphasises decentralisation more than any other characteristic. The ability to circumvent censorship and the inability to be altered are two of the major benefits of decentralisation. According to research that was carried out, one of its distinguishing characteristics is the fact that it does not rely on a third party to ensure the protection and safety of an individual's or organisation's assets or money (Tama, Kweka, Park, & Rhee, 2017).

Many advantages of blockchain technology make it possible for businesses to improve their understanding of their consumers, especially with regard to the demand side of the equation. Cases of use for data analytics and artificial intelligence have been thoroughly investigated and analysed. In terms of its technical feasibility, it may also hit a glass ceiling, yet many firms aim to make their products and services as convenient as possible. In addition to enhancing the safety and effectiveness of processes, it necessitates a greater capacity for endurance and resiliency than the faster financial repercussions (Viriyasitavat, Da Xu, Bi, & Sapsomboon, 2020: p. 1740).

According to the conclusions of the research that was carried out by Gunasekara, Sridarran, and Rajaratnam, (2022), manual procurement presents problems with regard to concerns of efficiency, data security, communication, and transparency. In a similar vein, electronic procurement systems also have problems with data security, inadequate integration, and lack of transparency. Therefore, the authors were aware of the need to change the procedures into a

sophisticated procurement system that is based on advanced digitalisation and technological advancement. According to the findings of this research, blockchain technology offers solutions to these problems, and it may be used at many stages of the procurement process.

V. E-Procurement

Electronic procurement, also known as e-procurement, is the use of digital and internet-based technologies, some of which have replaced conventional paper-based acquisition management methods in the procurement industry. Electronic procurement is also known as e-procurement (World Bank, 2016). Electronic auctions, also known as e-auctions, are often held over the internet and function in a way that is comparable to that of conventional auctions. Other bidders have access to information about prices and evaluation scores; but, in some procurement procedures, the identity of the bidders remains confidential. E-auctions and e-tenders are used in e-procurement. Web-based technology is used in e-auctions to let suppliers bid for customers' business in real-time at online marketplaces. Although there are many other kinds, reverse auctions, where the buyer selects among competing sellers, are the most popular. They may be based on price alone or a combination of factors (Giosa, 2018). E-tenders entail using digital solutions to enhance the tendering procedure for the purchase of specialised products or services (CIPS, 2022). E-purchases are utilised for the purchase of low-value but high-volume goods and services (CIPS, 2022). Ordering, invoicing, and the management of contracts are also included in the e-procurement technological use. According to CIPS (2022), a significant cultural shift occurs as a result of eProcurement in an organisation. All related employees in the organisation have to be aware of the advantages that eProcurement technologies will provide and must feel ready for them.

Kramer (2016: p. 33) highlighted important points that legislation of the South African public procurement system can be accomplished and most of these weaknesses resolved by implementing an electronic public procurement plan that outlines the detailed steps that must be taken in order to fully transform from a paper-based procurement system to an end-to-end e-procurement system. However, since procurement is heavily controlled in South Africa, a legislative and regulatory framework to enable the use of e-procurement would be required. At the present, the legislative environment is insufficient to support the use of computerised public procurement. To guarantee compliance, existing rules and regulations may need to be amended,

or new measures governing e-procurement may need to be drafted. E-procurement may be used to improve the South African public procurement system if supporting mechanisms such as a reform agenda and a complete legal and regulatory framework are in place to underpin an e-procurement system. According to Anthony (2018: p. 40), the South African government has been reluctant to react to the worldwide trend of e-procurement legalisation. Public procurement in South Africa is governed by section 217 of the Constitution, which stipulates that the government must contract for goods and services through a system that is honest, impartial, efficient, competitive, and cost-effective. In South Africa, there is no explicit provision for the promotion of e-procurement in the laws that directly control public procurement. Modern public procurement promotes excellent governance, good service, and sustainable development (Osei-Kojo, 2017). Government departments should carefully evaluate the many aspects that impact the preparedness for e-procurement implementation prior to making the decision to adopt an e-procurement system. This measure would facilitate the efficient planning of e-procurement acquisition, implementation, and user training within government agencies. Consequently, it would enhance the streamlining of procurement operations, leading to reduced operational expenses and mitigated instances of corruption. (Maepa, Mpwanyana, & Phume, 2023, p. 874)

Public procurement reform may immediately improve business, investment, and social environments, according to international studies like the World Bank (World Bank, 2012: p. 6). E-government reports propose that information and communication technology can estimate public utility demand and manage anomalies, dangers, and issues (United Nations, 2014).

4.5 CHAPTER SUMMARY

This chapter has unpacked the literature that is concentrated on the theoretical and conceptual frameworks of the study and identified the important types of 4 IR technologies that are relevant in public procurement. From this literature, the frameworks were used to guide and develop the study. This discussion was an important literature review in setting the pace and foundation for the empirical research. This has guided the researcher in building and accessing new knowledge of public procurement technologies. The research methodology follows in the next chapter which unpacks the steps of how the research process was conducted in this study.

CHAPTER FIVE

RESEARCH METHODOLOGY

5.1 INTRODUCTION

This chapter introduces and presents the research methodology of the study. The research methodology process involves a systematic detailed summary of gathering data, and how this data is then analysed to solve the research problem of the study. In this chapter, sub-sections will discuss the research design, research philosophy, study's population, sampling techniques, sample size, data collection methodology and data analysis. The subject of data credibility and trustworthiness will be discussed as well.

The research methodology of this study encapsulates the research approach, and the essential background on how the researcher intends to carry out the study to explain the research problems (Busetto, Wick, & Gumbinger, 2020: p. 2). The empirical research design creates the sketch for the consolidation, measurement and data analysis. A complete qualitative research design was applied in this study. To achieve the study's research objectives, it used an exploratory and descriptive research design with a specific focus on three selected HEIs public procurement (central procurement management and college/faculty-based procurement employees) employees and management. The research design for this study entails providing a detailed discussion and explanation of the data collected by the qualitative approach to solving the study's research questions.

5.2 RESEARCH QUESTIONS AND RESEARCH OBJECTIVES

5.2.1 Main Research Objective

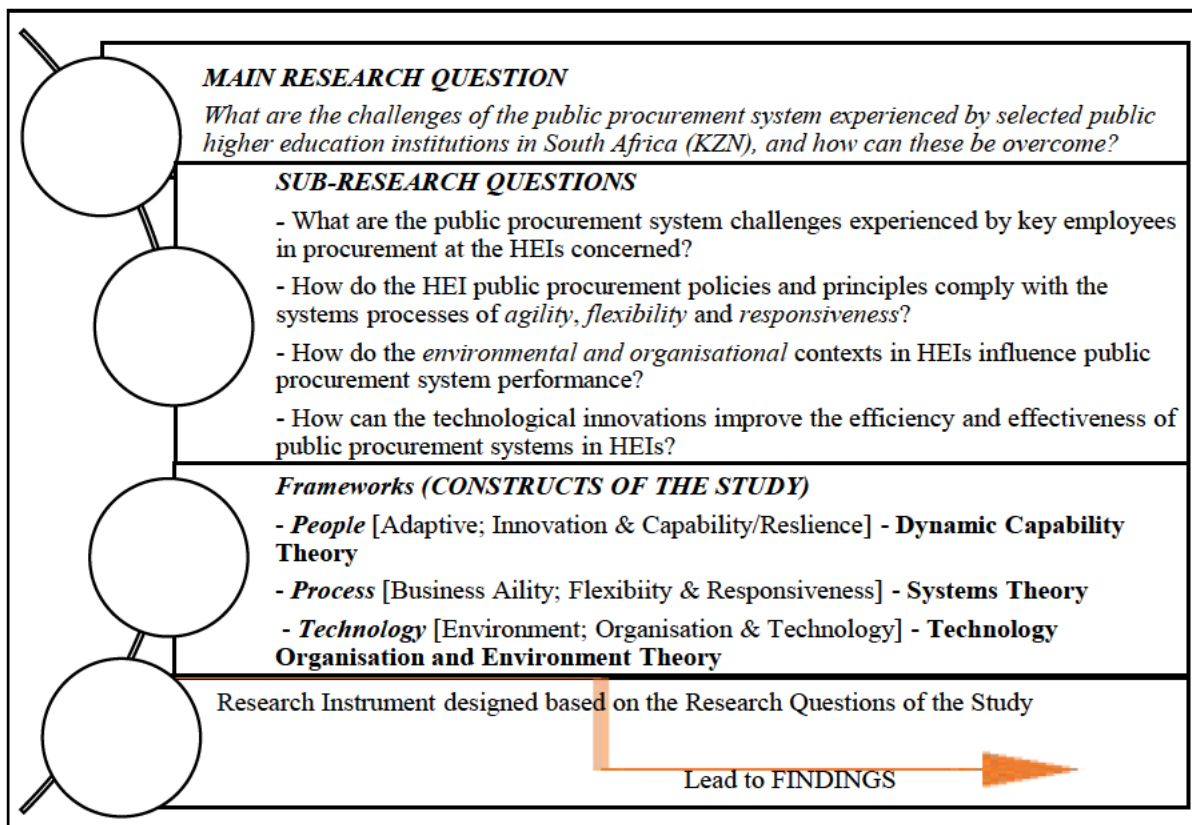
To identify and determine the challenges of the public procurement (people, process and technology) system experienced by selected public higher education institutions in South Africa (KZN), how these can be overcome.

5.2.2 Sub-Research Objectives

1. Identify and determine the systematic challenges experienced by key employees [people] in terms of the current public procurement systems in the HEIs.
2. Evaluate public procurement policies and principles [process] of the HEIs in compliance with the operations of *agility*, *flexibility* and *responsiveness* in their daily tasks.
3. Analyse the public procurement system performance of environmental and organisational contexts being used in the procurement systems of the HEIs.
4. Develop a framework that is innovative and technologically [technology] advanced in supporting HEIs to deal with public procurement system challenges.

Figure 5.1 presents a map of how the research questions are linked to the theoretical frameworks.

Figure 5.1: Mapping the Research Questions to the Theoretical Frameworks

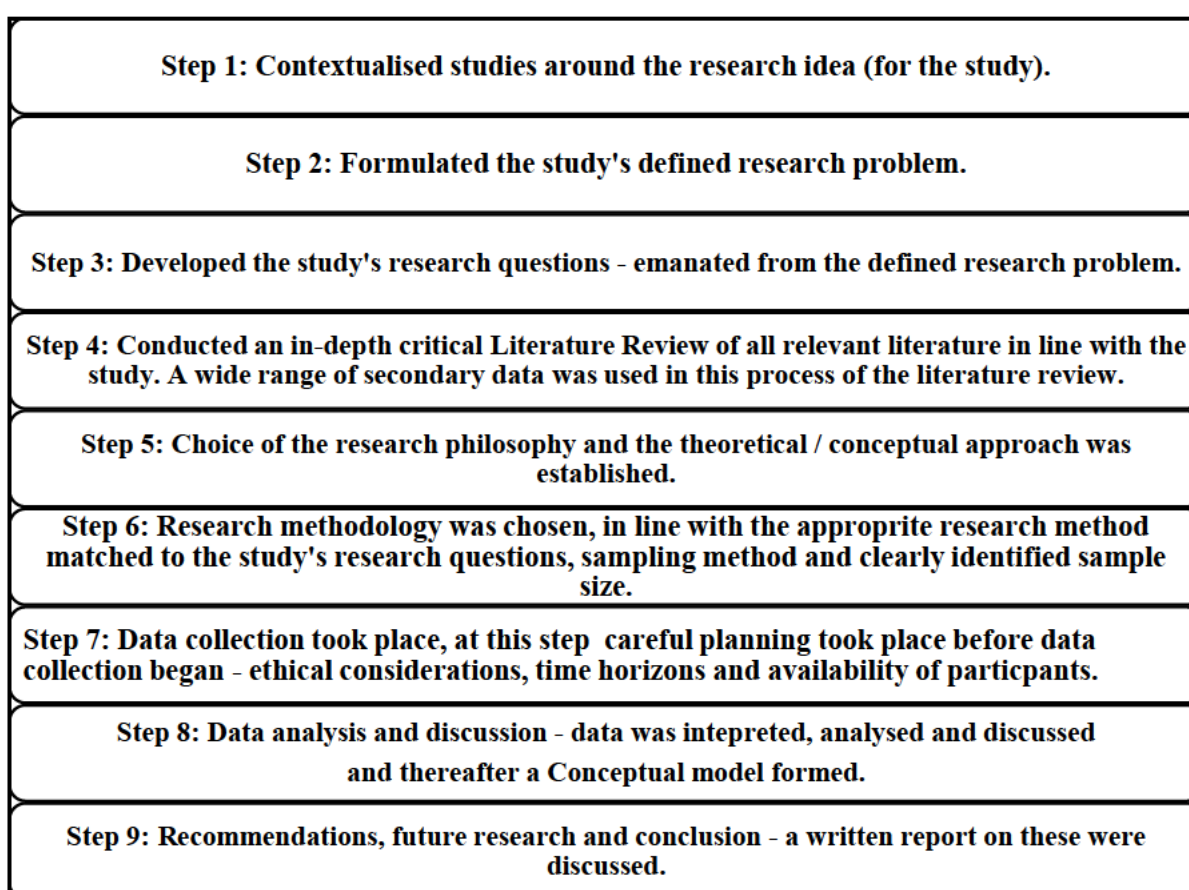


(Source: Author's Own Construction)

5.2.3 Research Process

Research is an ongoing process that does not end once the study is completed and the findings are disseminated. For research to be valuable from the perspective of a process, the value must lie beyond a sense of completion. The research process is ongoing as it is reflected on: the development of an idea; data collection; findings; and implications. A study's reflections may take shape in other ways (Bourke, 2014: p. 2). The research process is a set of systematic procedures that a researcher must follow to generate knowledge that will be valued by the project and focus on the relevant topic. The next section of this chapter presents the research process that was followed in this study. The research process of this study is presented in Figure 5.2.

Figure 5.2: Research Process: A Diagrammatic Representation

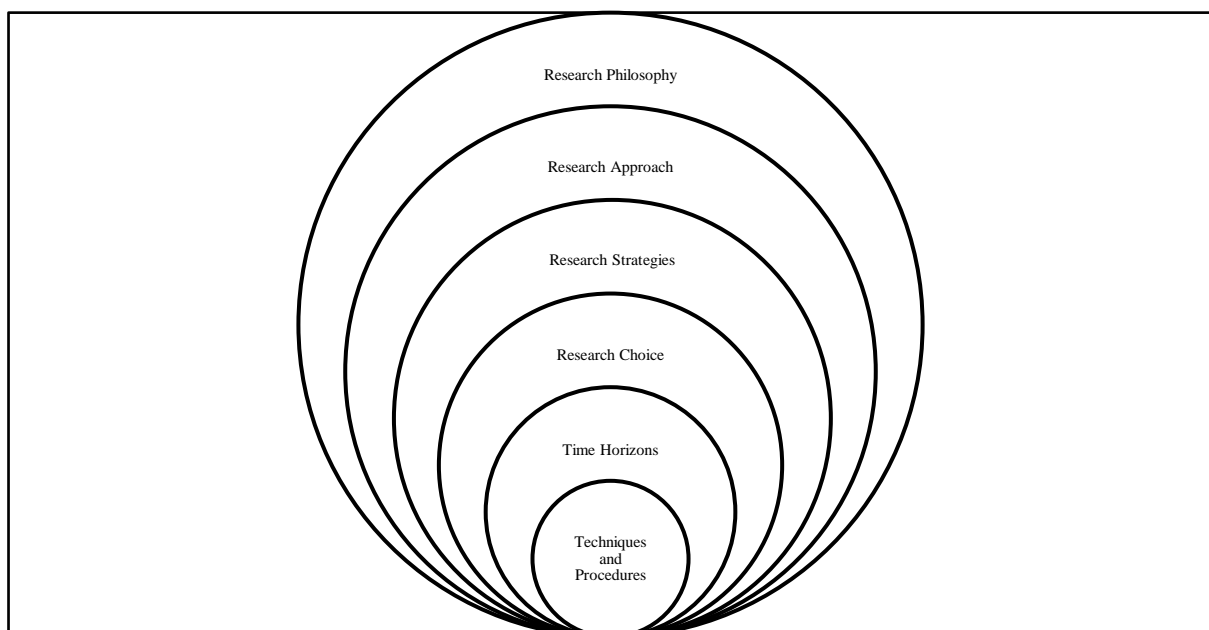


Source: Adapted from Saunders, et al. (2016: p. 276)

5.3 RESEARCH ONION

The research onion at its inception was extensive, being used in social science studies while still being used widely in social science research. It has expanded to being used in various business studies as an extension developed by Saunders et al. (2016: p. 211). Muranganwa (2016), further stated that a research onion creates a solid basis to develop a coherent and logical research design. Additionally, claims by Sahay (2016: p. 2) and Melnikovas (2018: p. 33), explain how the research onion puts together a step-by-step design of the research methodology as the different layers assist in operationalising this approach. According to Abdelhakim and Badr (2021: p. 99), pure qualitative studies that use the research onion research design produce effective methodological studies in social science research. In using the research onion approach, this study found that it was the best way to unpack and explain the different approaches, layer by layer, in investigating the study's research problem and thereafter arriving at a proposed solution. Furthermore, the solid choice to use the research onion lies in the attention of guiding the researcher to ascertain and interpret the data that shall be collected. In the subsequent sections to follow, each part of the research onion shall be discussed in line with the study.

Figure 5.3: Research Onion



Source: Adapted from Saunders, Lewis & Thornhill (2016).

5.4 RESEARCH PHILOSOPHY

The research philosophy is described as a “system of beliefs and assumptions about the development of knowledge” (Saunders *et al.*, 2016: p. 124). Any new school of thought, ideology, or set of beliefs that a researcher adds to the knowledge that is known in the domain of research becomes new knowledge that is developed. This is seen as the process of further developing the foundation of what is already known. This new knowledge need not be dramatic or intense, but new knowledge is developed even by answering a part of a particular question. Each researcher has a particular problem at hand that they are researching. Thus, they have their own mind and will answer their research problem in several ways in accordance with their understanding. A well-established research philosophy entails a few assumptions that monitor and direct the choice of research methodology, data compilation techniques, research strategy, and data analysis process (Saunders *et al.*, 2016: p. 124-125).

A research philosophy has impactful insights of guidance to a study and provides structured understanding of the different parts and alignment of the research study, bringing it together. In this section, a succinct overview will be explained of the definitions and meanings of the three research assumptions in understanding what the research philosophy is. These three assumptions consist of: *ontology*, *epistemology* and *axiology* (Aliyu, Singhry, Adamu, & AbuBakar, 2015: p. 12-13).

Ontology refers to “the nature of our beliefs about reality” (Bryman, 2021, p. 349). It focuses on the actual nature and choice of the reality that exists. In business studies, the assumption looks at how the researcher views the research objects of the study, like the individual, organisation, events, management, and artefacts (Saunders *et al.*, 2016: p. 127).

Epistemology focuses on assumptions about knowledge. It looks deeper into what is acceptable, legitimate and valid knowledge and how then can this knowledge be transferred and communicated for a greater purpose. Unlike ontology, epistemology is not abstract. It is understandable and relatable. Epistemology acknowledges that knowledge differs from one discipline to the next, thus data can range from numerical to textual, facts to interpretations, visuals, stories and narratives. Therefore, researchers from different disciplines adopt different epistemologies in their research (Moon & Blackman: 2014: p. 1169).

Axiology is looked at in terms of value and ethics' role in the research process. It unpacks questions as to how researchers look at their own values and that of their research participants in expressing human actions (Saunders et al., 2016: p. 127-128).

For this study, the ontology paradigm was used as the foundation of the structure of the study. The assumptions about the reality of public procurement in the HEIs that exist in the human capital, processes and technological settings of the study are reflecting distinct challenges to achieving efficiency and effectiveness. The ontological question is that “What can be known about the reality that exists in HEIs procurement systems?” (Bryman, 2021, p. 349).

5.4.1 Interpretivism

Interpretivism discards the view that a single understanding of reality exists independent of one's senses and states that the truth can be universally known. Instead, interpretivist researchers believe that multiple realities exist, thus truth and reality are shaped (Guba & Lincoln, 2005: p. 204). Scotland, (2012: p. 12) puts forward the view that the interpretivism research philosophy does not dominate a respondent's view but rather it highlights an understanding and behavioural perception of the actions of the participant's outlook on their actions.

As per Ryan (2018: p. 10), interpretivism claims that truth and knowledge are biased historically and culturally based on actual lived experiences and the understanding of this thereof. Researchers cannot be separated from their values and beliefs. This impacts the way data is collected, analysed, and interpreted. Saunders et al. (2016: p. 166) highlighted that access to reality could be gained through language, consciousness, constructs and shared meanings. As per Saunders et al. (2016: p. 167), various authors accentuated that humans create more meaning to issues than phenomena. The interpretivists investigate these meanings in several ways through research.

The points of view of different interpretivism indicated that physical happenings could not be scrutinised and studied in the same way as human beings (Saunders et al., 2016: p. 140). The acceptance was that laws and theories could not direct the different identifications of human beings to any occurrence. Consequently, it unpacks that people are different and thus act in various ways. No set universal definition can assume and suggest human behaviour. Instead,

the awareness of human behaviour relies on their diverse human experiences and understanding of life (Chowdhury, 2014: p. 434). The outcomes of this research philosophy afford circumstantial depth of significance (Chowdhury, 2014: p. 434). The real aim of interpretive research is to discover and unpack ‘real truths’ that exist about the knowledge in the context of public procurement in HEIs and to understand all interpretations from participants about knowledge clearly, truth and phenomena they interact with (Saunders, Lewis, & Thornhill, 2019, p. 108). For this reason, the study used the interpretative philosophy.

5.4.2 Critical Realism

Critical realism (CR) centres on what one views are and experience in terms of the fundamental foundations of ‘reality’ that shape discernible events (Saunders et al., 2016: p. 167). It is somewhat of a new paradigm being used in research. It characterises a grouping of interpretations and opinions that differ from that of those traditional positivists and interpretivists positions (Haigh, Kemp, Bazeley, & Haigh, 2019: p. 3-4). Evidence points to CR originating in the late twentieth (20th) century, from the work of Roy Bhaskar as he responded to both the positivist direct realism and the postmodernism (Reed, 2009: p. 1625). Building on this for many critical realists, the actual reality is of the utmost significance for philosophical reflection. Added view, a structured and layered ontology becomes crucial in understanding CR (Fleetwood, 2005: p. 200). Saunders et al., (2019) state that researchers need to look for a realistic picture of which researchers only form within it a small part. This study was informed by the critical realist philosophy. For this study, this philosophy was an effective match in identifying the reality of public procurement from the understanding of employees and management. A considerable amount of CR research takes the form of an in-depth new and historical examination of social and organisational structures and how much they have changed over time (Lawani, 2021: p. 3).

5.5 RESEARCH APPROACH

A research approach is a plan for how the research procedures shall take place. The procedure spans from wide-ranging assumptions to the in-depth method of data collection. There are three distinct approaches a researcher may use in collecting data. These research approaches are: *Qualitative research*, *Quantitative research*, and *Mixed methods research*. For the researcher to make an informed decision on the research approach that will be used in the study, the researcher must understand that the research approach plan consists of several key decisions (Creswell & Creswell, 2018: p. 3). Research approaches are broad techniques that researchers use when conducting research. The use of research approaches in information research has been observed to differ from one researcher to the next based on the investigator's preference as well as the nature of the topic under investigation. The differences in the use of research approaches in information research are based not only on data collection, but also on the practical implications of the investigation and the interpretation of the findings (Teherani, Martimianakis, Stenfors-Hayes, Wadhwa, & Varpio, 2015: p. 671).

The three most common research approaches are discussed, thereafter indicate the choice made by this study: qualitative, quantitative, and mixed methods, and discuss how their use fits into information research. Kankam (2020: p. 167) expresses that information researchers should be wary of the flaws in the approaches they would use for a study. The different research approaches are discussed further as follows:

5.5.1 Quantitative Approach

Quantitative research looks at the relationships between variables that are measured numerically and then analysed with a wide range of statistical and graphical techniques. Qualitative research integrates different controls to ensure that the data collected is valid in its experimental design. As data is collected in larger batches in a standard way, it is important that the researcher phrases the questions in such a way that it is understood in the same way by all participants. Quantitative research regularly makes use of probability sampling techniques in ensuring generalisability. The researcher is independent of those being researched, who are usually called respondents (Creswell & Creswell, 2018: p. 11-12). The quantitative research

method makes use of one data collection method, which can be that of a questionnaire or an online survey, and thereafter a corresponding analytical procedure as per the technique used.

This research method is suitable when applied to a well-defined questionnaire, with questions being asked leading to concise (brief) answers (Younus, 2014: p. 41). Quantitative research involves collecting, analysing, interpreting and completing a study's outcome (Creswell & Creswell, 2018: p. 200). This technique delivers data in numeric form and could be analysed statistically, using various statistical packages. It is a method that is used to further investigate theories and discover associations amongst variables.

5.5.2 Qualitative Approach

Qualitative research is the method that addresses the question of the “what” in the study (Bloomberg & Volpe, 2016: p. 37). Understanding and unpacking the “what” requires a conceptualisation of what is under investigation in numerous parts and as a whole. Understanding and knowing what something is consists of the conceptualisation of its “how” that is, its process and the unfolding (Wertz, Charmaz, McMullen, Josselson, Anderson, & McSpadden, 2011). Significantly, qualitative research comprises an understanding of context, circumstance, environment and setting/scene (Wertz et al., 2011). Qualitative research is appropriate in endorsing an in-depth understanding of a social setting or an activity as understood from the viewpoint of the research participants. The qualitative approach infers an emphasis on exploring, discovering and describing analysis (Denzin & Lincoln, 2013: p. 55).

Qualitative research studies, study “participants” significances and relationships between them by using a multiplicity of data collection techniques and analytical processes towards developing and producing a conceptual framework and making a further theoretical contribution (Saunders et al., 2016: p. 168). According to Bansal and Corley (2011), whilst qualitative research is permeated by methodological variations, it remains important regardless of the method used to depict methodological preciseness and theoretical contributions. Data collection in qualitative research is not standardised, allowing procedures and questions to emerge and be altered during the research process that is interactive and naturalistic. New information surfaces as participants explain further allowing the researcher to make suitable and ethical alterations to understand the participants’ views and feedback (Saunders et al.,

2016: p. 168-169). Qualitative studies in most likelihood make use of non-probability sampling techniques, as per this study. The actual accomplishment of a researcher's role is purely dependent on gaining access to participants to take part in the study and building a research fellowship by validating sensitivity in gaining cognitive access to the participants' data. No participant will answer questions and relay information to a researcher if they do not feel an element of trust in the research setting (Saunders et al., 2016: p. 169). In qualitative research designs, researchers may choose to use, single or multiple data collection methods. A single method is known as the mono method in qualitative research and more than one method is known as a multi-method.

5.5.2.1 Defining Features of Qualitative Research

1. Qualitative research is inclusive of an explanatory naturalistic approach to the world. This explanatory approach is interpretive. In this research, the participants were studied within the natural setting of their work environment.
2. Qualitative research is rooted in a philosophical position. It is concerned with the obscurities of how the cultural and social world are practiced, interpreted, and understood in a specific setting at a particular time.
3. The researcher attempts to unpack the meaning of the findings from the standpoint of the research participants. In achieving this goal in this study, the researcher gathered data directly from the chosen participants. The researcher then became the principal apparatus for data collection and thereafter, data analysis.
4. As per Patton, (2015: p. 13) qualitative research assumes that it produces 'rich' data that is arranged in the actual context that it was collected. This data can only be captured and analysed through an interactive process of the researcher and participant.

5.5.3 Mixed Method Approach

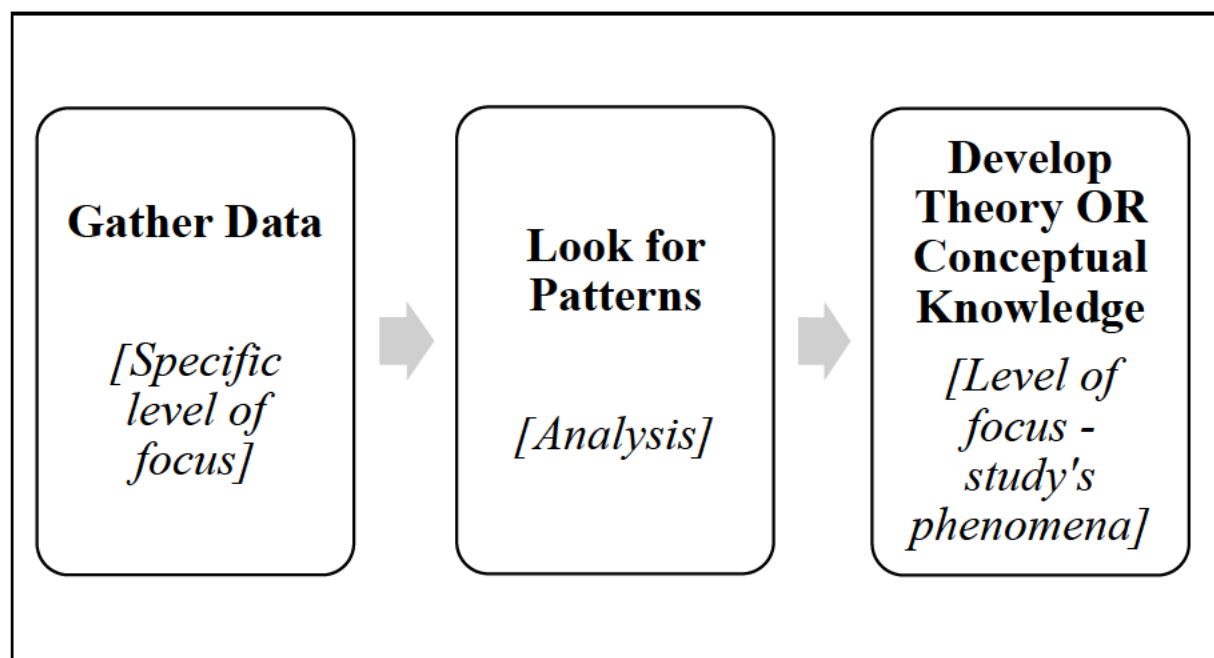
Work completed by investigators in varied disciplines of management, sociology and health sciences indicates that mixed methods research originated around the globe from the late 1980s to the early 1990s (Creswell, 2007: p. 72). Creswell and Clark, (2018: p. 200), indicated that mixed methods have gone through several developmental stages, inclusive of expansion to many disciplines.

A mixed methods research approach makes use of quantitative and qualitative techniques in conducting research. This research ranges from basic to abstract. The various ways in which quantitative and qualitative research can be combined have led to the development of several variations of mixed method research (Creswell & Clark, 2018: p. 201). These variations will be briefly discussed:

Concurrent mixed methods research is where the use of separate quantitative and qualitative methods is carried out in a single data collection and analysis process. The concurrent method allows the researcher to draw out richer contextual comprehensive data.

Concurrent triangulation occurs when a researcher collects qualitative and quantitative data in the same phase (simultaneously) of the research process. This is done to compare how the simultaneous data collection back one another. This method is said to provide rich data in a shorter timescale, however, some argue that this can become a tiresome rushed process that indicates incorrect analysis if rushed (Creswell & Creswell, 2018: p. 221).

Figure 5.4: Inductive Approach in a Qualitative Study



Source: Adapted from (Creswell & Creswell, 2018: p. 110)

To conclude this section, a single qualitative method was used in this study, namely, structured in-depth interviews (Saunders et al., 2016). The qualitative research method of in-depth interviews was found to be extremely beneficial as follows:

1. Phenomena were interpreted as holistic and complex systems viewed within the social and historical contexts of the HEIs.
2. The researcher maintained legitimacy when listening to participants, remaining reflexive and diplomatically aware of the information being discussed.
3. Context sensitivity and in-depth understanding allowed the research to interpret the data within its context (Bloomberg & Volpe, 2016: p. 40).

Furthermore, the choice of a qualitative study was deemed appropriate because it supported the researcher with insights specific to HEIs and their public procurement systems. Thus, the qualitative approach was used to comprehensively understand public procurement systems. From the qualitative research method through to the identified conceptual framework and theoretical foundation, the researcher embedded this study within the inductive approach of research in qualitative data analysis (As diagrammatically presented in Figure 4.4 above).

5.6 RESEARCH DESIGN

The research design of a study is a logical plan of how to answer the study's research question through data collection, analysis and discussion. It is furthermore an investigative structure on how answers to the study's research questions will be acquired. The research design is a practical and procedural framework of the entire plan that shall be carried out in a study. (Cooper & Schindler, 2014: p. 210). Added to this description, the research design of a study is crucial in authenticating and validating the type of data that is found, the study site where the data collection takes place, and how the data is looked into, examined, understood and then finally presented (Yin, 2014: p. 1999).

The comprehensive constituents of the research design are inclusive of the philosophical research position (which is a worldview), the inquiry plan and the detailed precise approaches to be used in a study (Ranganathan & Aggarwal, 2018: p. 194). The research methodology is a broad, overall research strategy that defines and describes the way and how research should be undertaken. Thus, the research methodology section is a fundamental part of a thesis, as it ensures consistency between the chosen research tools, techniques and research philosophy (Saunders, Lewis, Thornhill & Bristow, 2019: p. 131).

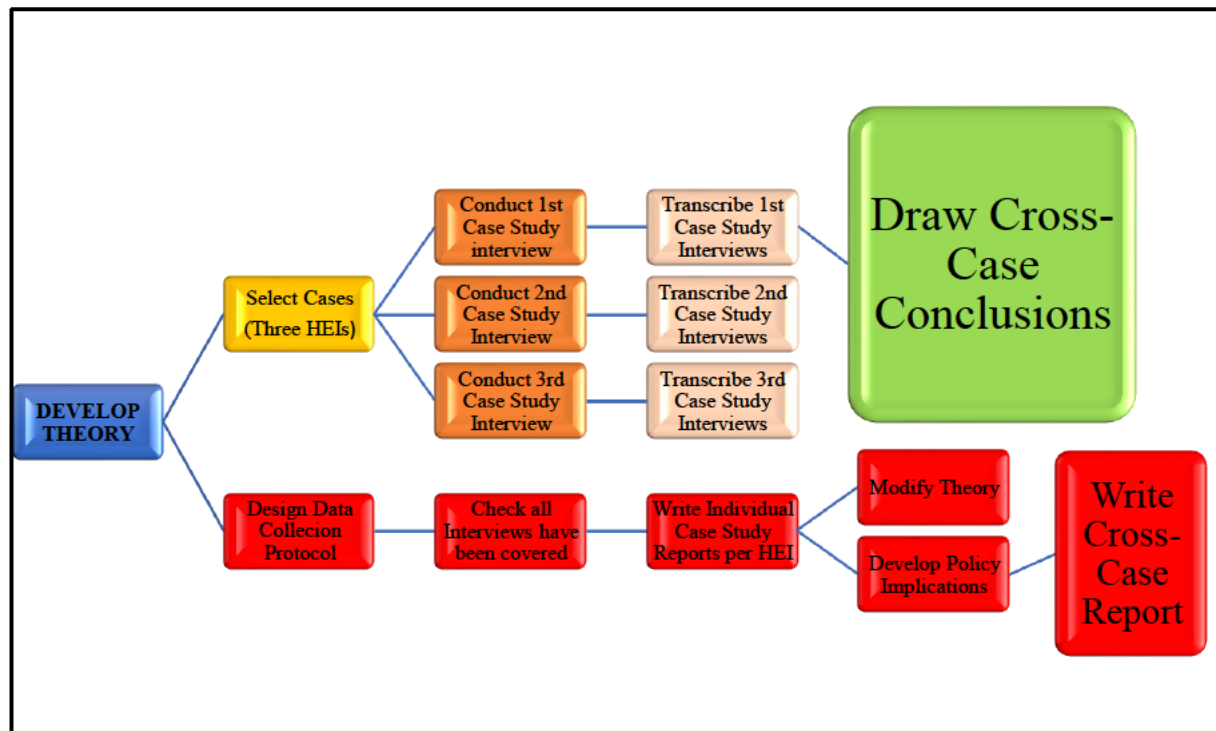
In this study, the research methodology structure was based on the theoretical concept of the '*research onion*', as illustrated in Figure 4.2. The research onion was first constructed and proposed by Saunders, Lewis, and Thornhill (2019: p. 129). The research onion framework described each part of the research methodology as a layer, this layer is integral to the broader research design of a study. Each layer of the research onion included the following: research philosophies, research methods, research strategies, the research choice, time horizons and the research techniques and procedures. The research design of this study encapsulates the research approach, the essential background to how the researcher intends to carry out the study to explain the research problems (Asenahabi, 2019: p. 80). The empirical research design creates the sketch for the consolidation, measurement and data analysis. A complete qualitative research design was applied in this study. To achieve the study's research objectives, it used an exploratory and descriptive research design; with a specific focus on the three selected public procurement (central procurement management and college/faculty-based procurement employees) employees and management. The research design for this study entails providing a detailed discussion and explanation of the data collected by the qualitative approach to solving the study's research questions. This study will contribute to understanding the central public procurement challenges and crescendos of the selected HEIs and the detail of the public procurement systems by focusing on the main constructs of the study: *people, process and technology*.

5.7 RESEARCH STRATEGY

In a broad sense, a ‘strategy’ is a proposal of a plan of action towards achieving a goal. A research strategy in turn is defined as a well-defined plan of how a researcher will go about answering his/her research questions of the study (Denzin & Lincoln, 2013: p. 14). In a research strategy, there is indeed an operational link between a researcher’s philosophy, choice of research method in data collection and data analysis. As per Saunders et al., (2019), the research strategy was depicted as “the general plan of how the researcher will go about answering the research questions”. Similarly, the research strategy encompasses the general synopsis of steering research and provides the entire research with a direction and process by which to conduct and complete the research (Bryman, 2008: p. 36). Saunders et al. (2016: p. 190) later on further indicated that a suitable research strategy should be chosen based on the study’s research objectives and questions. The best-suited research approaches in business management studies are: case studies, surveys, grounded theory action research, cross-sectional studies, experiments and ethnography (Denzin & Lincoln, 2013: p. 16).

This study chose the *case study* research strategy as the researcher completed an extensive understanding of all research strategies. Yin (2014: p. 14) defined case study research as “in-depth inquiry into a topic or phenomenon within its real-life setting”. Yin additionally unpacked the understanding of case studies by pointing out that the ‘case’ in the case study could refer to a person, manager, organisation, employee, an association/body/group of companies and a work team. Case studies could be singular or multiple. As in the case of this study, a multiple case study research strategy will be used. In choosing a case or cases to be studied, the outlining factor is to determine boundaries in the case. Within the given background of the case, there must be much interaction between the context and its setting. Understanding the research context of the study is central to case study research (Saunders et al., 2019: p. 185). Figure 4.5 depicts how the case study strategy was used in this study.

Figure 5.5: Case Study Description



Source: Adapted from (Yin, 2014: p. 60)

5.8 DATA COLLECTION

In data collection, the data collection instruments are the tangible techniques that are used by the researcher to gather legitimate and reliable information from the participants. What will be used by the researcher to ask questions and gather answers from participants are known as data collection instruments. It is a process of collecting and determining information on factors of interest to the study. It is done in a methodical way that allows the researcher to answer the study's research questions and thereafter evaluate the outcomes. The role of data, whether in a quantitative or qualitative study is to collect truthful and accurate data. The objective of data collection lies in obtaining quality evidence, which can be interpreted into rich data analysis, thereby continuously ensuring that credible answers to questions have been gathered. The accurate selection of the chosen data collection instrument will help eliminate errors that may occur (Kabir, 2016: p. 202). Yin (2014: p. 107), explained that research can have the best research design, but if the required data is not collected, the study will not be completed. He added that data collection is very arduous, thus it requires proper planning, patience,

persistence and diligence on the part of the researcher. Data are classified into two broad categories: Quantitative and Qualitative.

Quantitative data are numerical and can be statistically analysed.

Qualitative data are non-numerical and analysed in the form of patterns, themes, and textual data.

The reliability of qualitative research is efficient at abridging and managing data without removing the context and complexity of the research being studied. Qualitative research methods have a common goal, in that they produce/generate new ways of looking at existing data. In so doing, if the objective and intention were to construct a theoretical framework or a conceptual idea, this reflects the *reality* of the research analysed, rather than what the actual objective and intention were and not that of the researchers. Qualitative research assists the researcher in deeply understanding phenomena in detail by using different qualitative methods of data collection, central themes and analysis of core phenomena are discovered (Queirós, Faria, & Almeida, 2017: p. 17). Atieno, (2009: p. 13) further confers that qualitative researchers require skill, concentration and intended purpose towards producing committed and clear research outcomes, should this not be followed the research journey will become time-consuming and tedious.

5.8.1 Interview Guide

An interview guide is a tool that outlines the interview process for interviewers. It assists researchers in conducting effective interviews. The goal of interview guides is to ensure that interviews are:

- a. Fair: Using an interview guide can help to eliminate interviewer bias and should only include pertinent, relevant questions in line with the study's research objectives.
- b. Thoughtful: Interview guides necessitate preparation and planning before it begins. This feedback aids in the development of thoughtful questions that can reveal more about a candidate than traditional questions.
- c. Interview guides should be tailored to specific positions and industries (Roberts, 2020: p. 3190).

Thematically, in terms of creating knowledge, and dynamically, in terms of the interpersonal interaction in the interview, an interview question may be assessed in terms of both theme and dynamic dimensions. An excellent interview question should contribute conceptually to knowledge creation and actively foster a positive interview engagement (Brinkmann & Kvale, 2015: p. 157).

In this study, the interview guide was specifically devised by the researcher, in alignment with the research questions of the study. The interview guide was laid out into five sections: Section 1 covered the biographical data for the study, Section 2 covered the general questions, Section 3 looked at the '*people*' construct of the study, Section 4 followed centred on the '*process*' construct of the study and lastly, Section 5 covered the '*technology*' construct of the study. The interview guide was well spaced out with a professional layout (See Appendix D) and was three pages long.

For the researcher to collect participants' information for the qualitative data, she needed to have direct contact with the selected HEIs in KwaZulu-Natal. When a researcher discusses with willing participants in a study, particularly those who can make educated judgments or have previous experience with the subject, the researcher is said to be conducting an interview (Holmes, 2020: p. 8). It is claimed that an interview consists of a conversation between an interviewer and an interviewee, and that this conversation takes place during the stage of the study known as data collection (Qu & Dumay, 2011: p. 239). The material for this study was gathered by the researcher from key informants in the selected HEIs who had prior considerable knowledge and expertise in the subject matter of this research. Following this approach, the researcher was able to get very candid comments from the selected participants.

In order to ensure the highest level of accuracy, the researcher supplied a comprehensive research environment that was dependent on the number of hours spent interviewing participants (see Appendix D – Interview Schedule). Once the researcher had gained all gatekeeper permission letters and ethical clearance, the informed consent interview guide schedule was sent to the participants in sufficient time in advance so that they could acquaint themselves with the constructs and context of the interviews. During the interviews, the researcher followed a guide that consisted of semi-structured interviews. The purpose of the interview guide was to collect information from participants in order to better understand the

challenges of public procurement in HEIs. This information included both the context and the substance of the phenomena. The researcher made extensive use of personal individual interviews to elicit additional insights from the subject matter experts.

5.8.2 Interviews

When it comes to qualitative research designs, interviews are an essential component of primary data gathering. The goal of a qualitative study, in contrast to the objective of quantitative research, is to investigate and provide an explanation for why a given phenomenon occurs in a certain manner (Stewart, Gill, Chadwick, & Treasure, 2008: p. 237). Because of this, it is necessary to have efficient means of collecting primary data, and the interview technique should be at the core of these approaches. Interviews are an essential component of qualitative research (Edwards & Holland, 2013). Interviews are suitable for use in either an experimental or a phenomenological research paradigm (Aliyu, Bello, Kasim, & Martin, 2014). Because interviews have a singular place in the canon of qualitative research, this study's investigation delves into a more in-depth examination of this research method in order to better understand its implications. The position of interviews at the core of qualitative research is validated by all of these aspects, which is why interviews continue to be such an essential data-gathering instrument (de la Croix, Barrett, & Stenfors, 2018: p. 252).

Interviews in qualitative research are categorised into three techniques: structured; semi-structured and unstructured or in-depth interviews. A discussion will follow on each of the three interview techniques.

a. Structured Interviews

Structured interviews consist of a list of questions that have been decided beforehand and must be answered by each interviewee in the same sequence. As researchers can compare and contrast the many responses provided to the same questions, data analysis is often simpler to carry out than other types of study (Rashidi, Begum, Mokhtar, & Pereira, 2014: p. 29).

b. Semi-structured Interviews

Interviews that are semi-structured combine aspects of both structured and unstructured interviews into a single format. When conducting semi-structured interviews, the interviewer will prepare a series of questions that all of the interviewees will be asked to answer. During the same time, extra questions might be asked to explain and/or further expand upon a particular concern (Kallio, Pietilä, Johnson, & Kangasniemi, 2016: p. 2954).

When conducting semi-structured interviews, the researcher prepares a list of topics to be discussed as well as maybe some important questions to be asked; however, how they are used varies from interview to interview. Given a certain organisational setting that is met in connection to the study issue, this indicates that a researcher can ignore some questions while conducting certain interviews. The natural progression of the discussion may also cause the sequence in which questions are asked to shift. On the other hand, given the nature of the activities that take place inside certain organisations, the researcher may need to ask some extra questions in order to investigate the research topic and aims. Due to the nature of the questions and the subsequent discussion, data will be acquired by either audio-recording the chat or potentially taking notes during the talk (Adeoye-Olatunde & Olenik, 2021, p. 1360). The interview schedule for this type of interview will most likely contain, in addition to the list of topics and questions that are going to be covered, some comments to open the discussion, a possible list of prompts to promote and further discussion, and some comments to close it. This is in addition to the fact that the interview schedule will likely contain the list of themes and questions that are going to be covered. In this study, semi-structured in-depth interviews were used for data collection.

c. Unstructured or In-depth Interviews

Unstructured interviews are often the least trustworthy kind of interview from a research perspective. This is because no questions are prepared in advance of the interview, and data collection is carried out in a more casual way. Unstructured interviews have the potential to be connected with a significant degree of bias, and it is often difficult to compare the responses provided by various respondents owing to the variances in the phrasing of the questions asked (Rahul, 2022: p. 477).

The qualitative research method was used in this study. Both primary (semi-structured in-depth interviews) and secondary data were used. The interview schedule (instrument) was divided into five sections. As procurement is not a standalone department at the three HEIs, but is incorporated into finance or operations, semi-structured in-depth interviews allowed additional factors to be considered and explored in line with the stated research objectives. The participants that were part of the study were key procurement employees and management from all colleges/faculties, as well as from the Central Procurement Office (CPO) of the selected HEIs. An interview guide was used (Appendix D – Interview Schedule). As a result of the Covid-19 pandemic, interview choices were left optional. The researcher abided by the guidelines of the HEIs research process where it was indicated that employees be given the choice of face-to-face or on-line interviews. The online platforms used, were specifically Zoom and MS Teams. Only one interview was completed face-to-face, the rest of the twenty-four interviews were completed online, this is what employees chose and felt most comfortable with. The option was a priority given to all employees, both senior and junior. The majority of the target population chose the online interview option. Semi-structured in-depth interviews were used to unpack the research objectives of the study.

Before beginning the interview, the researcher briefly introduced herself, and went over the research objectives of the study. The researcher also emphasised the issues around voluntary involvement, confidentiality, and anonymity, as well as the opportunity to opt out of participating in the study at any point. The duration of each interview ranged from forty to fifty minutes. The interviews were recorded, willingly from all participants, so that it was transcribed at a later stage. These recordings were utilised for further stages of the study process. As interviews were recorded, the researcher was able to concentrate on conducting the study, questioning the participants, and gathering their responses to the interview questions. Due to the open-ended nature of the questions, the interviews were recorded electronically and then transcribed for use in the subsequent data analysis. A report known as a transcript represents the actual interview that took place between the parties involved. During recording the interview, every effort was made to ensure that the obtained data remained accurate. After completing the interview, the researcher thanked the respondents for their willingness to take part in both the interview and the study.

5.8.3 Research Choices

As per the research onion (Saunders et al., 2019: p. 177), the research choices in a study consist of mono, mixed and multi-methods. The mono method consists of a single research approach to a study. The mixed method consists of using two or more research approaches to a study, this will be a combination of quantitative and qualitative methodology. In the multi-method, a wider choice of research techniques is divided into segments, and accurate data are formed from each segment. In this study, a complete qualitative research approach was used. As the interview guide was divided into different sections of the three constructs of the study, the results were then created into thematic segments (Bryman, 2012: p. 416).

5.8.4 Time Horizons

A time horizon of a study is the actual time frame of the study. The time horizon of a research study can be either longitudinal or cross-sectional. The gathering of pertinent information (data) at a certain instant in time is what distinguishes cross-sectional studies from other types of research. Since all of the data in a cross-sectional study are obtained at the same time and most of them pertain to the time at or around the time the data were collected, there is no time dimension involved in cross-sectional research (Kesmodel, 2018: p. 389). Snap-shot research is a newer form of research introduced under cross-sectional time horizon studies. This was a study that was conducted over a longer period, months to a year (Sekeran & Bougie, 2016: p. 104). This research study was cross-sectional and followed the snap-shot time horizon. Data was collected within a one-year timeframe after full ethical clearance was granted by the University of KwaZulu-Natal.

5.8.5 Unit of Analysis

A unit of analysis in a study is the ‘main’ tool that is used in order to investigate the research problem. In this study, the unit of analysis selected were the four main HEIs in KwaZulu-Natal - South Africa. The procurement employees and managers represented the unit of analysis within the four HEIs. *Semi-structured in-depth interviews* were considered appropriate for this study. The researcher pursued to gather and acquire key information on perspectives, thoughts

and workplace skills (Kumar, 2018: p. 71). The qualitative data collected in this study involved semi-structured in-depth interviews with relevant key procurement employees and managers.

5.8.6 Recruitment of Participants

The qualitative research method was used for this study, all three HEIs that have been targeted were made aware of the study, and initial enquiries on Gatekeeper access were identified. The provisional ethical clearance was processed and approved. Gatekeeper access was targeted to all four institutions. Thereafter, all three HEIs granted the researcher Gatekeeper access to the study. Once gatekeeper access was fully received, the researcher then targeted the ‘actual’ population of the study by contacting (telephonically and via email) the Head (Department Director/Manager) of the procurement/finance department, indicating the intention of the study.

This key individual then assisted the researcher in gaining access to the key participants that were recruited into the study. Once this was established, through the purposive sampling procedure, only relevant/key department employees were chosen for the study by the researcher. Only the relevant participants were recruited for the study. The method of contacting these department employees was telephonically and via email. No other use of social media was used to make contact, as per the Gatekeeper access conditions. Once the relevant/key procurement/finance department employees agreed to participate in the study. Letters of informed consent were sent directly to the respective employees via email, where all details of the study and guidelines were clearly explained. These employees then signed these forms understanding all research guidelines and sent them back to the researcher via email. Thereafter, data collection commenced.

5.8.7 Target Population

A group of individuals, participants, or respondents with definite attributes of concern, interest and significance. The target population can be defined as well refined to target the correct study’s population based on the research context and goal of the study (Asiamah, Mensah, & Oteng-Abayie, 2017: p. 1611). A complete group of people, areas of interest and procedures that a researcher wants to investigate on and unpack interpretations is usually understood as a

target population (Alex & Bridier, 2021: p. 344). The target population of a study is the total group of individuals from which the sample size is derived (Cooper & Schindler, 2014, p. 85). In South Africa, there are twenty six HEIs and there are four HEIs in KwaZulu-Natal, South Africa. As of accessibility, this study included use of the three biggest HEIs in the province. The three selected universities are the largest public HEIs in KZN and have a fully-fledged procurement system that was reworked after the mergers and then further adapted since then. Thus in terms of an in-depth study, these three HEIs deemed suitable in gaining a clear understanding to the study's objectives. The target population is the junior and senior employees of central procurement staff in the procurement divisions of the universities. Employees of the procurement department at the HEI were the key individuals in the study. The researcher decided to include managers and employees of the procurement departments as most of the knowledge and operational decisions lie within their portfolios. The initially identified target population of ten senior employees (procurement managers) and twenty junior employees (procurement officers/administrators who fall under the hierarchy of the procurement managers)- a total of thirty staff. However, some employees could not make themselves available due to a busy work portfolio, others opted not to participate in the study. In completion, a total of twenty-five procurement employees participated in the study's interviews. The response rate of the target population versus the participants who took part in the study, was 83%.

Table 5.1 indicates the target population categorisation of the three selected HEIs.

Table 5.1: Target Population [Sample Size chosen as per purposive sampling]

| Higher Education Institution | Employee | Manager | Method |
|--------------------------------|----------|---------|------------------------------------|
| Higher Education Institution 1 | 5 | 1 | Semi-structured in-depth interview |
| Higher Education Institution 2 | 4 | 1 | Semi-structured in-depth interview |
| Higher Education Institution 3 | 9 | 5 | Semi-structured in-depth interview |
| | 18 | 7 | |

Source: (Author's Own Construction)

5.8.8 Study Sampling Technique

A sample in research is a smaller set of data that a researcher then selects from a larger population, which is the target population of the study. This sample is chosen by the researcher making use of a pre-defined selection method. Constructing a sample is a proficient process of conducting research. In varied and most instances of research, it is costly and rather time-consuming to research the entire target population. Thus, researchers choose a sample as this affords detailed efficient insights that the researcher can then apply to the population (Hennink & Kaiser, 2022: p. 2-3).

Sekaran and Bougie (2016: p. 237) termed a sample as a subset of a population. They further went on to explain that studying a sample from the chosen population generates more reliable results. As this study made use of the qualitative research design, it used the non-probability sampling design. Non-probability sampling designs include the selection of participants by chance. This study follows the non-probability purposive sampling method, as per the researcher's judgement criteria (Cooper & Schindler, 2014, p. 88). Procurement employees and management will be categorised accordingly and chosen as per the purposive sampling approach. Non-probability sampling affords a broader range of different techniques to select samples, the common of which are inclusive of the element of subjective judgement. Thus, the purposive sampling type is known as 'judgement' sampling as well (Saunders et al., 2016: p. 295). This sampling method entails gaining and accessing information from certain target groups that abide by an established set principle from the investigator. The purposive judgment sampling technique allowed the researcher to use her judgement in selecting the chosen participants that are explanatory and have a thorough understanding and knowledge of the context of the study (Saunders et al., 2016: p. 302). In the selection of the non-probability sampling technique, the researcher took into account the difficulty she would face in getting management to respond to the interview requests and being part of the study.

In selecting a non-probability sampling technique, the researcher took into consideration the difficulty in getting participants that are in management positions to be part of a study. All the characteristics of the non-probability sampling technique relate to the conditions and requirements needed for this study. The sampling frame of this study was inclusive of the selected three HEIs in KwaZulu-Natal, South Africa. The selected sample chosen consisted of

the procurement head manager at HEI and procurement employees (buyers/specialists) who were in the well-suited job role to be able to provide the much-needed information in this study. The selected employees have the essential and adept knowledge as a result of their experience and possession of the much-required facts and specialised information that is vital to the study being researched. In responding to the set type of questions, judgement sampling was the only suitable sampling method that stood out for this study. The researcher chose what was known and then tried to find out the relevant employees that had the enthusiasm and willingness and were available to sit in on the interviews because of their knowledge and experience. The prominence lay within particular employees that could take the study further with astute information. The core reason for making use of non-probability sampling in this study was that the researcher found that this sampling method had the ability to produce valuable insights for the study (Etikan, Musa, & Alkassim, 2016: p. 3).

5.8.9 Sample Size

The sample size refers to the chosen number of units from the data for the study (Sekaran & Bougie, 2016, p. 268). Experts in qualitative research say that the question of "*how many*" does not have a simple answer and that the sample size is dependent on a variety of criteria related to epistemological, methodological, and practical difficulties (Vasileiou, Barnett, Thorpe, & Young, 2018: p. 2). Sandelowski (1995: p. 180), suggests that qualitative sample sizes should be large enough to permit the unfolding of a 'new and richly textured understanding' of the phenomenon that is being researched, but small enough to ensure that the possibility of conducting a 'deep, case-oriented analysis' (p. 183) of qualitative data is not eliminated. Morse (2000: p. 4), makes the hypothesis that fewer people are required for an experiment if each participant provides more data that may be used. She encourages researchers to take into consideration characteristics such as the breadth of the study, the nature of the issue (i.e., how difficult or easy it is to obtain), the quality of the data, and the design of the study. Indeed, it has been discovered that the level of structure of questions in qualitative interviewing can influence the richness of data generated (Ogden & Cornwell, 2010: p. 1060) and as a result, requires attention; empirical research shows that open questions, are asked later on in the process. Those employees who have been employed for less than two years were not considered. The indicated, initial targeted population and sample size was thirty procurement (key) employees, however only twenty five participants took part in the study.

5.8.10 Purposive Sampling

The method known as purposive sampling involves purposefully selecting participants for an experiment based on the attributes those individuals bring to the table. It is a method that does not use randomness and does not need any underlying theories or a predetermined amount of participants. In other words, the researcher chooses what information is necessary and then searches for individuals who can supply it and are also eager to do so due to their level of expertise or previous experience (Rai & Thapa, 2015: p. 5). In qualitative research, purposeful sampling is often used to find and choose the information-rich instances to make the best possible use of the resources that are readily accessible. This requires the identification and selection of people or groups of persons who are skilled and knowledgeable about a phenomenon of interest. In addition to one's knowledge and experience, it is important to keep in mind the significance of one's availability and readiness to engage, as well as one's capacity to articulately, expressively, and reflectively convey one's own experiences and perspectives (Denieffe, 2020: p. 664).

Purposive sampling was used in this study, as the knowledge of the participants is required to answer the research questions. Purposive sampling is illustrative of a population of interest and results are drawn from the sample, which can then be generalised to the entire population of the study. Palinkas, Horwitz, Green, Wisdom, Duan, and Hoagwood (2015; p. 535), expresses that participants in a given study are favourably selected as of their knowledge and know-how on the subject matter and not because they are available to participate. In addition, purposive sampling was used as the researcher of this study needed to gain access to specific individuals that are of key relevance to answering the research questions. As this was a completely qualitative study, the researcher chose the selected HEI employees and managers in expressing their expertise regarding the phenomenon of the study (Campbell, Greenwood, Prior, Shearer, Walkem, Young, Bywaters, & Walker, 2020: p. 654-654).

5.9 DATA ANALYSIS

The analysis of data is a fundamental component of any reliable qualitative investigation. The qualitative researcher is frequently referred to as the research instrument. This is because the researcher's capacity to comprehend, describe, and interpret experiences and perceptions is essential to the process of determining meaning in specific situations and settings (Maguire & Delahunt, 2017: p. 3351). This study used the thematic analysis method of collecting, interpreting and analysing data. The act of recognising recurring themes or patterns within qualitative data is referred to as *thematic analysis*. According to Braun and Clarke (2006: p. 78), this should be the first qualitative method that is mastered because it gives essential abilities that will be beneficial for doing a variety of different types of analysis. The fact that it is a method rather than a methodology is another advantage, particularly when seen from the point of view of education and instruction (Braun & Clarke 2006; Clarke & Braun, 2013). Because of this, in contrast to many other qualitative approaches, it is not bound to a specific epistemological or theoretical stance. Because of this, it is a very flexible system, which is a significant benefit given the wide variety of tasks involved in learning and instructing. The purpose of thematic analysis is to recognise themes, which can be defined as recurring patterns in the data that are significant or intriguing, and then to make use of these themes to address the research or make a statement about an issue. An effective thematic analysis does much more than simply summarise the data; rather, it interprets the data and makes sense of what it means. One mistake that many people do is to utilise the primary interview questions as the subjects of their discussion (Clarke & Braun, 2013). In most cases, this is a reflection of the fact that the facts have not been analysed but rather summed up and organised.

Braun and Clarke's six-step thematic analysis (Braun & Clarke, 2006) was used for this study. The steps are as follows:

Step 1 – Become familiar with the data: Reading and rereading the transcripts was the initial step in conducting a thematic qualitative analysis of the data of this study. Before proceeding any further, a thorough understanding of the whole body of data was completed, also known as the data corpus (which includes all of the information collected from the interviews). It is beneficial to make notes and jot down initial impressions at this point in the process.

Step 2 – Generate initial codes: During this stage in the study, data were organised in a meaningful and methodical manner. Coding broke down large amounts of data into small morsels of meaning. Each segment of data was coded that was related to the research question/s or captured something noteworthy about it. The unnecessary and irrelevant text was not coded.

Step 3 – Search for Themes: A theme, as previously stated, is a pattern that highlights something important or intriguing about the data and/or study question. According to Braun and Clarke (2006), there are no hard and fast guidelines about what constitutes a theme. The relevance of a theme defines it. In this case, the codes were evaluated and it was viewed that some of them matched to form a theme. Various codes were produced. The codes had been organised into bigger themes at the end of this process, which seemed to say something specific about this study question.

Step 4 – Review Themes: themes were examined, adjusted, and refined to the preliminary themes established in Step 3. During this phase, the question was are they logical? At this time, it is beneficial to collect all essential data for each theme. One may simply accomplish this by using the 'cut and paste' function in any word processor processing package, by cutting your transcripts with scissors, or by utilising something like Microsoft Excel (Bree & Gallagher, 2016). Again, access to qualitative data analysis software can speed up and simplify this procedure, Nvivo 2022 was used in this study's analysis.

Step 5 – Define Themes: This is the ultimate refinement of the themes, to identify the "essence" of what each topic is about (Braun & Clarke 2006: p. 92), for example: What does the theme mean? If subthemes exist, how do they interact with and relate to the main theme? What are the connections between the themes to each other?

Step 6 – Write Up: A thematic analysis report was written up, it provided a clear, cohesive, logical, non-repetitive description of the data included (Braun & Clarke, 2006). Thorne (2000) encouraged researchers to clearly express the logical processes by which discoveries were created in a way that a critical reader can understand so that statements made about the data set are credible and plausible. To facilitate the reporting process, Halpren (1983) suggested that researchers retain methodological notes, trustworthiness notes, and audit trail notes, which to date is very useful.

Direct quotes from participants, according to King (2004), are a vital component of the final report write-up. Short quotes may be provided to help with comprehension of certain points of interpretation and to highlight the ubiquity of the themes. Extracts of raw data must be interwoven inside the analytic narrative to portray the data's complicated story, going beyond a description of the data and convincing the reader of the analysis's validity and usefulness (Braun & Clarke, 2006).

5.10 DATA QUALITY CONTROL

In a research study, data quality control involves the steps that the researcher takes to process the checks on the credibility and accuracy of the research findings. Credibility and validity are important checks for qualitative studies. Credibility and validity will be discussed as separate research concepts for this qualitative study. Quality in any research study is important. The qualitative method will be to ensure that the findings are credible and trustworthy, as detailed below:

5.10.1 Credibility – Trustworthiness

Stahl and King (2020, p. 28) found that according to Guba and Lincoln (1981, p. 34), the real value and essence of a study can be examined by understanding its trustworthiness. This is why the qualitative phase of this study looked at the four (4) concepts of trustworthiness to ensure that the quality of the research findings is trustworthy. According to Guba and Lincoln (1981, p. 35), the concepts used in evaluating quality in trustworthiness (Saunders et al., 2019, p. 6) are:

- *Credibility* - Using credibility in this study will ensure transparency and the creation of rich data being produced.
- *Transferability* - Transferability is the extent to which the research study can be moved into other contexts.
- *Dependability* - In this study, dependability will ensure that the study is consistent and reliable in all contexts. If the study is to be repeated in different contexts using the same research methods but with similar participants, the results will be the same.
- *Conformability* - This considers how the findings of the research are supported by the actual data collected. The findings will reflect the data received from the study informants

and NOT the perspectives of the researcher. The rationale of the study is followed by addressing the research objectives.

Credibility measures the true value of qualitative research, or if the study's results are genuine and correct. It relies in part on the credibility of the researchers as well as the methodology they used. When the conclusions of the study mirror the perspectives of the subjects, there is credibility. In qualitative research, data credibility is referred to as data confidence. In terms of credibility, it is determined whether or not the research findings form a "credible" conceptual interpretation of the data gathered from the participants' original data (Haven & van Grootel, 2019: p. 238).

5.10.2 Validity in Qualitative Studies

In qualitative research, the "appropriateness" of the instruments, methods, and data refers to validity. The validity of the research question with respect to the desired outcome, the appropriateness of the methodology chosen, the appropriateness of the design for the methodology, the appropriateness of the sampling and data analysis, and finally the appropriateness of the findings and conclusions to the sample and context (Kitto, Chesters, & Grbich, 2008: p. 190). Regarding the relationship that exists between the construct and its indications, validity has been considered. It is intended to guarantee that the instrument measures or evaluates what it was intended to measure or evaluate (Wilson, 2010). Content and construct validity metrics were employed in this investigation. In evaluating the face validity of the instrument, both specialists and professionals in the subject were consulted. Before the finalisation of the research instrument, the supervisor's guidance was solicited (Hayashi, Abib, & Hoppen, 2019: p. 99). The study's content validity was achieved by aligning the study's constructs with its aims. With the assistance of relevant literature, the qualitative aspects of this investigation were established.

5.10.3 Measurements of Data

The measurement of the qualitative data was thematically analysed and common themes that appeared in all the responses were noted. Data measurement enables an interpretation of data to be realised in the process (Fisch & Block, 2019). The thematic analysis of this study will be discussed in detail in the section to follow.

5.11 ETHICAL CONSIDERATIONS

This study followed all ethical standards of protocols and rules. Before the study began, ethical clearance was applied for and granted by the UKZN Ethics Committee. Ethical clearance ensured that the *qualitative research was identified*, and data collection methods adhered to the strictest morals and integrity of the institution and its participants. An informed consent letter was signed by all participants who took part in the interviews. This ensured that there was consistency between both the *interviews and* measures of research methods that were used. Further, this allowed the participants of the study to view the terms and conditions of the study and understand the need for the study, and note their will to participate or not. Data received remained completely confidential with the highest standards of ethical practice being followed, and the researcher did the utmost best to ensure anonymity at all times, before, during and after the study had been completed. No misrepresentation, false information, or distortion of any information under any circumstances took place. Data will be stored for a period of five (5 years) using technological drives.

The University of KwaZulu-(UKZN) Natal's Ethical Committee standards were properly followed. The application for ethical clearance had been completed. The letters obtained from the gatekeepers were added to the application and forwarded to the UKZN Ethics Committee. Following receipt and review of the application, the researcher was granted full permission to conduct fieldwork under protocol reference number HSSREC/00004429/2022. The approval expires on 08 July 2023.

5.12 CHAPTER SUMMARY

This chapter went over the research methods in great detail. Before accepting the best research philosophy for this study, the numerous research philosophies, their benefits and weaknesses were reviewed. A thorough review of the methodology and study design was conducted, before a choice for this study was made. This chapter studied deductive, inductive, and integrative research methodologies. Following a detailed review of the various sampling strategies, with a cursory look at their pros and drawbacks, purposive sampling proved useful in selecting participants for interviews. The various sampling methods were thoroughly explained. The target population was taken into account when selecting sample strategies. Other topics covered in this chapter include the study's limitations and the ethics observed during the investigation. The results will be presented and analysed in the following chapter.

CHAPTER SIX

PRESENTATION, ANALYSIS AND DISCUSSION OF THE FINDINGS

6.1 INTRODUCTION

Chapter Four presented a blueprint for this study's approach to addressing the research questions by outlining the research strategy and methods. The results of this study are presented around the public procurement challenges faced by HEIs in South Africa. These challenges are described, analysed and discussed in this chapter. In Phase 1 of this study, an in-depth literature review was completed on the importance of public procurement, well-defined concepts, a Global, African and South African overview of procurement in HEIs, HEIs in South Africa, procurement process, public procurement principles, conceptual and theoretical framework, procurement legislation, detailed regulatory discussion of the following acts: B-BBEE Act, Public Finance Management Act, *Preferential Procurement Policy Framework Act*, New Developments in Public Procurement in HEIs and the understanding of technology (4IR) in public procurement were all addressed in great detail in Chapters Two and Three.

This chapter presents the data analysis and results through empirical research. It assists the researcher in ascertaining how systematically universities conduct procurement and how far they have advanced via the use of well-aligned procurement systems.

Using the qualitative data analysis technique, this chapter demonstrates participants' perceptions about the challenges of public procurement systems experienced by selected public HEIs in South Africa. These participants were all directly employed in the procurement departments of the selected higher education institutions. The preceding chapter covered the research methodology, which used the qualitative technique of a thematic analysis (reading through data sets; identification of patterns and thereafter determining the themes developed from these patterns) to lead the entire investigation. Accordingly, a detailed interview schedule was created, interview appointments set up and data collected from participants. The researcher decided to analyse, evaluate, and comprehend the data using an analysis tool. All data was analysed using the NVIVO software (2022).

The procurement employees and procurement managers and executives of the selected HEIs who were interviewed for this study are represented by their comments in the sections to follow. In the qualitative interviews, the participants were asked for their opinions based on the research objectives and the interview schedule, and they were given the chance to share perspectives of their own experiences related to the study of interest. Through telephonic calls to the selected HEIs in KwaZulu-Natal, the researcher first identified the study participants. Thereafter, the request for the gatekeepers' letter was presented and emailed to the selected HEIs' relevant departments, and it was acknowledged. Once accepted and gatekeeper access granted, the researcher was then able to more clearly define the study participants, carefully chosen according to the criteria required of the study. The HEIs research department additionally devised the key individuals of the procurement department and made these accessible to the researcher, who then made telephonic and electronic contact with key individuals to begin the interview process. An informed consent letter asking for permission to conduct the interview and a request to be allowed to audio record the interview were given to the participants on the day of the interview. Most participants opted to have an online interview. The researcher used the audio recording via Zoom and MS Teams to help with the transcription of the interviews she had with the various participants. The researcher added a signature to the document and emphasised the confidentiality of the information she would get from the participants. The researcher further restated the clause of anonymity.

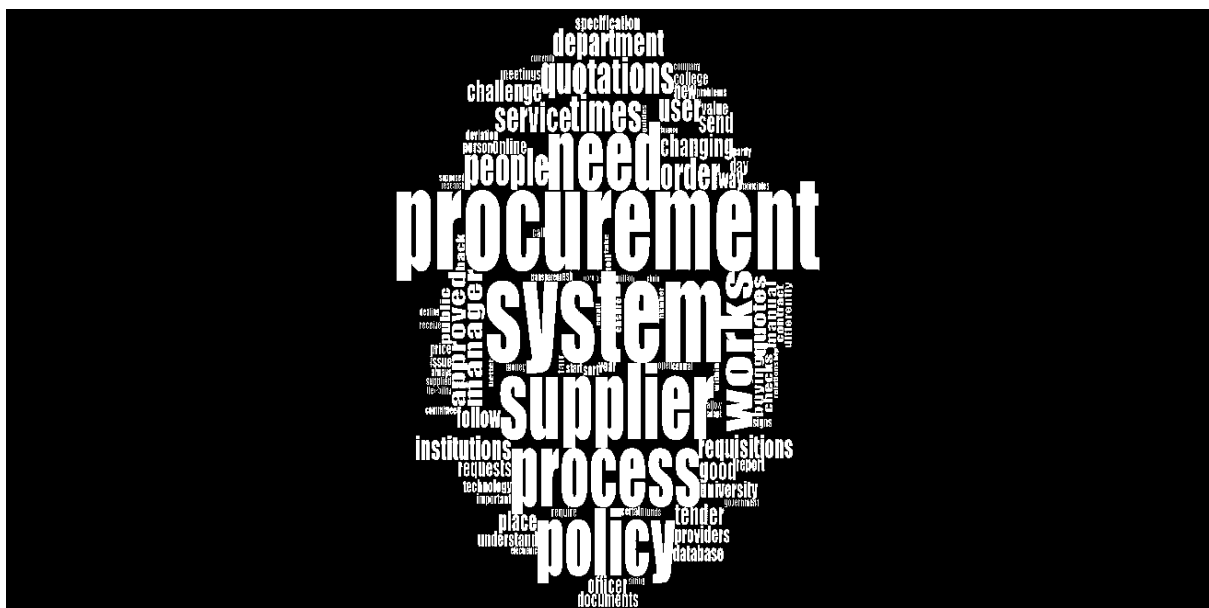
6.2 QUALITATIVE DATA ANALYSIS TECHNIQUES - NVIVO

Even though qualitative can sometimes be seen as frequently complex, Dhakal (2022: p. 270) asserts that if they are managed effectively, qualitative data can result in insightful conclusions. Tools to manage and evaluate qualitative information must offer alternatives for data in a variety of formats given the various types of qualitative data. When it comes to classifying, arranging, and analysing qualitative data, NVivo is a useful tool because it can import and support a wide range of formats and data types. Additionally, it has been suggested that employing NVivo or other computer-assisted qualitative data analysis software (CAQDAS) can boost the calibre of the analysis (Røddesnes, Faber, & Jensen, 2019: p. 29). In this study, the qualitative data analysis techniques used were that of: word clouds; tree maps; cluster analysis; hierarchy charts and word trees. Each technique will be briefly defined and explained within the study's context.

6.2.1 Word Clouds

A "word cloud" is a graphic representation of word frequency in written text. The word appears larger in the produced graphic the more times it appears in the article under analysis. The resultant pictorial representation illustrates the most common words of relevance by eliminating infrequent and grammatical terminology (Atenstaedt, 2012: p. 148).

Figure 6.1: Word Cloud - Public procurement system challenges at selected higher education institutions in KwaZulu-Natal, South Africa



Source: Compiled by Researcher from the Information Analysis of Nvivo – 2022.

6.2.2 Tree Maps

In a tree map, nested rectangles of various sizes are used to represent hierarchical data. Use size, for instance, can indicate how much coding is present at each node. Size denotes quantity, such as the number of coding references or coded nodes. The sizes of the rectangles should be viewed in relation to one another rather than as an absolute number because the tree map is scaled to fit the available space as best as possible (Goyal & Deshwal, 2022: p. 2).

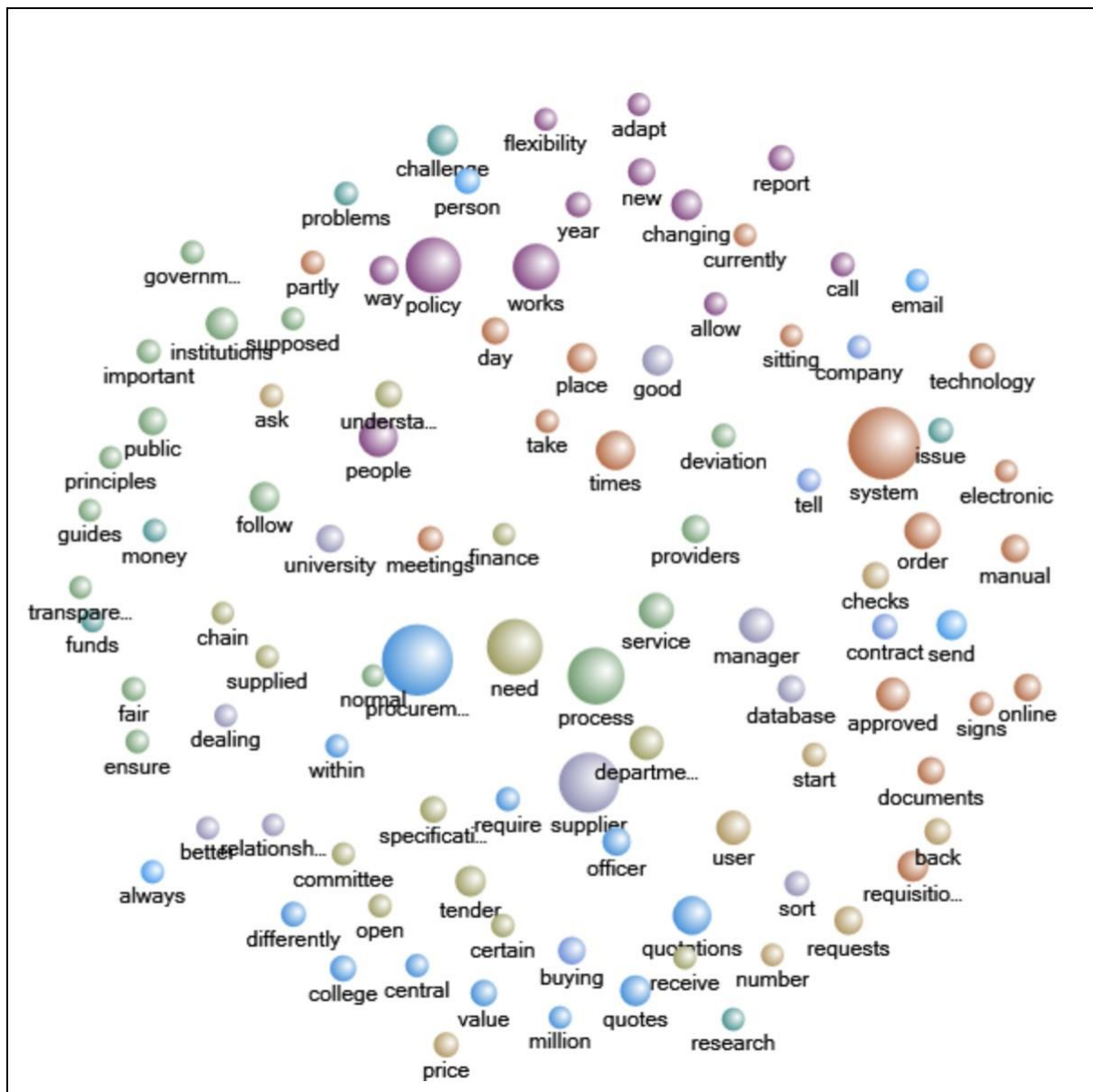
Figure 6.2: Tree Map – Public procurement system challenges at selected higher education institutions in KwaZulu-Natal, South Africa

Source: Compiled by Researcher from the Information Analysis of Nvivo – 2022.

By combining sources or nodes with similar terms, similar attribute values, or similar coding across nodes, you can utilise the exploratory technique of cluster analysis to see trends in your project. With the use of cluster analysis diagrams, it is simple to see similarities and differences between sources or nodes. In the cluster analysis diagram, sources or nodes that are close to one another appear to be more similar than sources or nodes that are far apart (Asare, Yap, Truong, & Sarpong, 2021: p. 1599).

- The parallels and discrepancies across your sources
- Across your nodes, what are the similarities and differences
- Based on attribute value, the demographic distribution of the study's participants

Figure 6.3: Cluster Analysis – Public procurement system challenges at selected higher education institutions in KwaZulu-Natal, South Africa



Source: Compiled by Researcher from the Information Analysis of Nvivo – 2022.

6.2.4 Hierarchy Charts

Hierarchical diagrams show your data as it has been compiled. Any node containing child nodes will be shown on a hierarchy chart as a parent node together with its offspring, even if node aggregation is not enabled. An item's information, including the number of items coded, the number of coding references that directly link to the parent, and an aggregate figure of the parent and children, is displayed in a tooltip when you hover over a particular section of the chart. Any node with child nodes may appear larger than its real coding on hierarchical charts because nodes are sized according to whether or not they have children. Understanding the data that underlies a certain area can be achieved by using the tooltip information (Nvivo, 2022 – Version 12).

Figure 6.4: Hierarchy Charts – Public procurement system challenges at selected higher education institutions in KwaZulu-Natal, South Africa

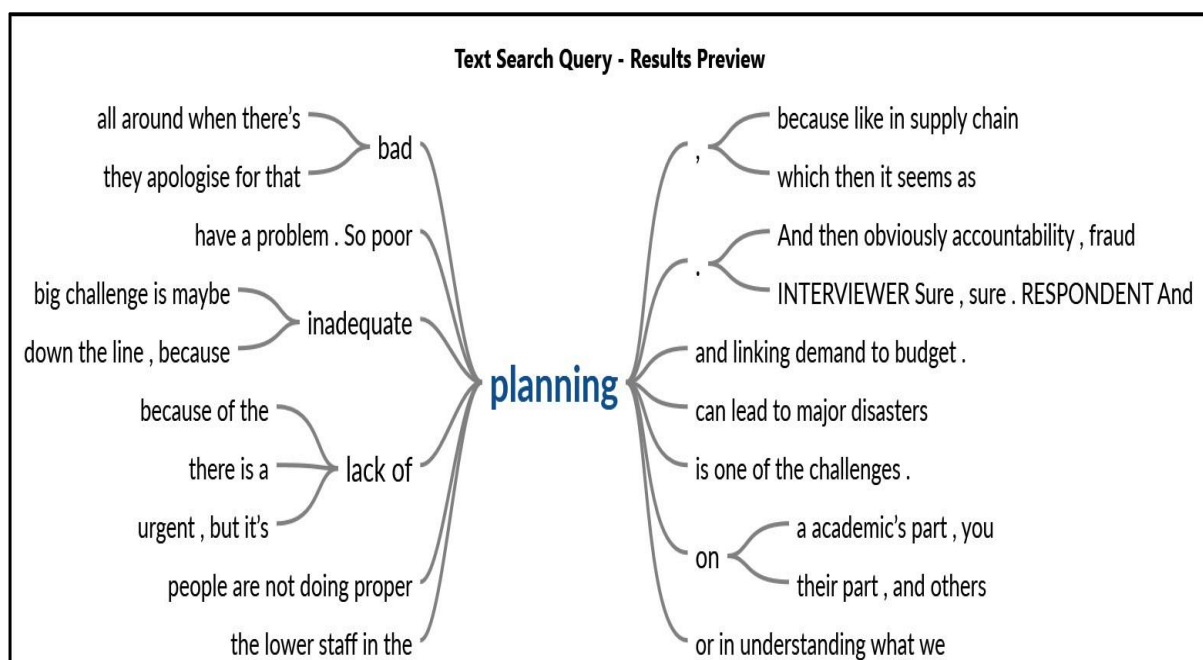


Source: Compiled by Researcher from the Information Analysis of Nvivo – 2022.

6.2.5 Word Trees

The classic "keyword-in-context" approach is represented graphically in word trees, which allow for quick text body browsing and querying (Wattenberg & Viégas, 2008: p. 1222). A word tree can be used to show people how the researcher found themes and conclusions as well as assist him/her to identify common words and phrases in the data.

Figure 6.5: Word Trees – Public procurement planning challenges at selected higher education institutions in KwaZulu-Natal, South Africa



Source: Compiled by Researcher from the Information Analysis of Nvivo – 2022.

6.3 BRIEF GUIDE TO THE STEPS USED IN QUALITATIVE ANALYSIS OF THE STUDY

The participants were provided with an interview guide, and the time limit was discussed before the interview began. The interview questions were designed to draw responses from the participants regarding their perceptions and understandings of the following topics: (a) the public procurement system challenges experienced by key employees at the selected HEIs concerned; (b) how does the HEI public procurement policies and principles comply with the

systems processes of agility, flexibility and responsiveness?; (c) In what ways do the environmental and organisational contexts in HEIs influence public procurement system performance? (d) Do technological innovations improve the efficiency and effectiveness of public procurement systems in HEIs? The structured in-depth interviews included twenty-five key individuals who were specifically chosen from among the three selected HEIs. The Nvivo program (Version 20 - 2022) was used to analyse the data following the interviews. The recorded interviews were then transcribed into an MS Word document in order to prepare for the analysis of the data. The transcribed information was then entered into the qualitative analysis tool – the NVivo software program produced themes and sub-themes and sub of sub-themes. Themes were created in NVivo utilising nodes. A node functions as a bowl for all the data about a specific topic. When a node in the NVivo program is opened, it displays all the data that has been coded in relation to the theme.

In this study, the research objectives were unpacked in detailed according to the interview schedule. The interview schedule was set out with the clear research objectives of the study in mind, thus alignment was critical in assuring a well-documented study.

6.3.1 Main Research Objective

The main research objective of the study was to: *identify and determine the challenges of the public procurement system experienced by selected public higher education institutions in South Africa (KZN), and how these can be overcome.*

6.3.2 The Sub-Research Objectives

6.3.2.1 Identify and determine the systematic challenges experienced by key employees in terms of the current public procurement systems in the HEIs

The goal of this sub-research objective was to detect and recognise the HEIs' public procurement systematic challenges that are being encountered by employees at the selected institutions. The main overarching research objective of the study was to identify and determine the challenges of the public procurement system experienced by selected public higher education institutions in South Africa (KZN), and how these can be overcome. This sub-

research objective was the starting point of unpacking the study in line with the main research objective.

6.3.2.2 Evaluate public procurement policies and principles of the HEIs in compliance with operations of *agility, flexibility and responsiveness* in their daily tasks

The public procurement principles of South Africa serve as a policy tool for ensuring integrity across the whole of the public procurement process. They adopt a comprehensive approach by tackling several integrity concerns at every level, beginning with the requirements assessment and continuing through the award stage, contract management, and finally the final payment. In this study, the aim of this Sub-research objective 2 was to assess the public procurement principles of the selected HEIs with regard to operational compliance in specific reference to agility, flexibility and responsiveness.

6.3.2.3 Analyse the public procurement system performance of environmental and organisational contexts being used in the procurement systems of the HEIs

The efficiency of the public procurement system is necessary for assuring good performance. The purpose of systems performance analysis is to look into the operation of a system as well as the myriad factors that influence the actions of the actors included inside it. Instead of merely analysing the rules, regulations, and policies that are the driving forces behind the system, in this study, the aim of Sub-research objective 3 was to examine the research into the efficiency of the public procurement system, paying particular attention to the environmental and organisational settings that are present in the HEIs' procurement procedures.

6.3.2.4 Develop a framework that is innovative and technologically advanced in supporting HEIs to deal with public procurement system challenges

Sub-research objective 4 will be discussed in Section 5.9 which reflects the proposed conceptual model from the findings of this qualitative study and the knowledge contribution.

In line with the research objectives of the study, the three main research constructs that directed the study are: *People*; *Process* and *Technology*. The five themes were carefully analysed through detail from transcriptions to input into Nvivo analysis techniques. Sub-research objective 1 feeds into and relates to the *People* construct of the study; Sub-research objective 2 feeds into and relate to the *Process* construct of the study and Sub-research objective 3 and 4 feed into and relate to the *Technology* construct of the study. These three constructs then further fed into the five themes of the study that were identified from the detailed qualitative data analysis. The major themes that came out of the study's analysis are shown in Table 5.2. They are then explored in more detail.

6.3.3 Research Objective alignment to study's Constructs and Themes

Configuration in a study's understanding is an imperative step of the study's alignment, thus it will be explained and presented diagrammatically before the identified findings may be discussed. The foremost core main aim of the study was set out to identify and determine the challenges of the public procurement system experienced by selected public higher education institutions in South Africa (KZN). In line with the three constructs of the study being: *people*, *process* and *technology* – the study proceeded to identify these challenges within the parameters of the study's constructs. In aiming to create a well-aligned study, the interview schedule was closely formed with the research objectives of the study and the study's constructs.

6.3.4 Main Themes of the Study

- a) Theme 1 – Challenges in Public Procurement at the selected HEIs
- b) Theme 2 – Capabilities, Innovation and Adaptabilities of employees
- c) Theme 3 – Public Procurement Processes and understanding
- d) Theme 4 – Public Procurement policy and principles
- e) Theme 5 – Technology and Public Procurement

6.3.5 The Linking: The Research Objectives – Constructs – Themes

It can be comprehended from the study that Sub-research objective 1 of the study links to Primary themes 1 and 2, which then is directed into the *people* construct of the study, Sub-research objective 2 of the study links to Primary themes 3 and 4, which then is directed into the *process* construct of the study and lastly, Sub-research objectives 3 and 4 of the study links to Primary theme 5, which then is directed into the *technology* construct of the study. With this clear linking roadmap, a detailed discussion will follow in the next section that begins the process of discussing the finds as per the sub-research objectives of the study.

Each primary theme of the study is further broken down into the following:

- a. Primary Sub-Themes
- b. Sub-Themes

The findings of the study are discussed in detail as per each sub-research objective of the study linked to the primary theme and construct. Chapter 5 presents the data analysis and presentation. The analysed data are presented verbatim, showing a clear indication of how themes were developed from the coded data. The aim of the discussion of the findings is to interpret and convey the relevance of the study's results in light of what was known about the research topic under investigation, from the completion of contextualising the research problem. Thus, the findings presented are unique to this study and will offer insight into public procurement systems manifestation at HEIs in South Africa.

6.4 BIOGRAPHICAL DATA

The first component of the interview schedule instrument was intended to obtain biographical information about the participants. Slightly more women than men were presently employed at the selected HEIs, demonstrating compliance with employment fairness and female representation. In South Africa, the Employment Equity Act no.55 of 1998, clearly advocates that gender discrimination is wrong. The Act was further revised to include provisions on the equal pay for equal labour concept - regardless of gender. If an employer is determined to have engaged in unfair discrimination, they may be required to adjust the wages of impacted workers. In this study, as depicted in Table 5.1, 44% of men and 56% of women were

participants. The impression is that more women than men are employed in HEIs public procurement departments.

An examination of the study's participants' educational levels revealed that 8% completed their matriculation, 32% received their degrees and 32% received their national diplomas. This demonstrates that the respondents' level of knowledge is fairly good, with over 60% having tertiary qualifications. It was inferred that 88% of the participants' population completed Grade 12 (matric) and obtained a further relevant qualification, indicating a very good percentage of suitably qualified staff employed at the selected HEIs. However, when assessing procurement-relevant qualifications completed, only 68% of the participants were befittingly qualified within the public procurement space. About 2% chose not to specify their qualifications and 8% only obtained a Grade 12 (matric) certificate. These percentages are presented in Table 5.1. Finally, respondents were asked to specify how long they had held their present job titles at the selected HEIs of the study. Sixteen percent of the participants were employed between the 0 to 3 years mark and 28% of those polled had held the post for five to eight years. The long-standing employees representing 12%, between 25 to 40 years of service at the selected HEIs. This is a direct indication of these employees who have been committed and dedicated to working in public sector procurement. In this case, gaining job experience may have allowed these employees to relocate to other areas of interest, particularly if they were happy with salary increases and adjustments. As shown in Table 5.1, a significant percentage of 84% was represented by participants who have been employed between the five to forty-year indicators. This can be attributed to those employees who wished to stay and move to promotions, key management positions, and lastly those employees who were keen to gain well-rounded public procurement experience.

Table 6.1: Biographical Data Table

| Participant Number | Gender | Education | Years of Experience |
|---------------------------|---------------|---|----------------------------|
| 1 | Male | BCom General | 8-12 Years |
| 2 | Male | National Diploma Procurement/Accounting | 30-35 Years |
| 3 | Male | Post Grad Diploma | 8-12 Years |
| 4 | Female | BCom Honours – Accounting | 5-8 Years |
| 5 | Female | Chartered Accountant | 12-15 Years |
| 6 | Male | BCom Accounting | 5-8 Years |
| 7 | Female | Degree in Accounting | 12-15 Years |
| 8 | Female | Post Grad Degree – Supply Chain & Marketing | 0-3 Years |
| 9 | Female | Grade 12 | 15-20 Years |
| 10 | Female | BCom Honours – Supply Chain | 5-8 Years |
| 11 | Male | Unstated | 15-20 Years |
| 12 | Female | National Diploma Procurement/Accounting | 5-8 Years |
| 13 | Male | National Diploma Procurement/Accounting | 25-30 Years |
| 14 | Male | Grade 12 | 35-40 Years |
| 15 | Male | BTech – Office Management & Technology | 8-12 Years |
| 16 | Female | BCom Supply Chain | 5-8 Years |
| 17 | Female | National Diploma Procurement/Accounting | 0-3 Years |
| 18 | Male | BCom Honours – Supply Chain | 5-8 Years |
| 19 | Female | National Diploma Procurement/Accounting | 15-20 Years |
| 20 | Female | National Diploma Procurement/Accounting | 8-12 Years |
| 21 | Male | Degree in Supply Chain | 5-8 Years |
| 22 | Female | BCom General | 0-3 Years |
| 23 | Female | National Diploma Procurement/Accounting | 0-3 Years |
| 24 | Female | BCom General | 8-12 Years |
| 25 | Male | National Diploma Procurement/Accounting | 8-12 Years |

Source: Compiled by Researcher from the Information Analysis of Nvivo – 2022.

6.5 THEMATIC ANALYSIS – THEMATIC MAP

The next parts of this chapter will "unpack" each of the five themes that were presented in the thematic map as represented in Table 5.2. These themes provide evidence of a connection between what the empirical data shows and the guiding notions that were used in the investigation. To get a comprehensive understanding of the problems that were uncovered by the data, we are going to examine every component of the map in great depth. To further support the findings presented in the conclusions, several portions of the report incorporate direct statements from the participants.

Table 6.2: Thematic Table/Map of the Five Key Main Themes of the Study

| Sub-Research Objective | Main Theme | Primary Sub-Theme | Sub-Themes | Study Construct |
|--|---|---|--|-----------------|
| <i>Identify and determine the systematic challenges experienced by key employees in terms of the current public procurement systems in the HEIs.</i> | THEME 1: Challenges in Public Procurement at the selected HEIs | 1. Public Procurement System Challenges | <ul style="list-style-type: none"> • Administrative • BEE • Compliance • Ethics • Suppliers • Staff • Funding and Resources | PEOPLE |
| | | 2. Technological Challenges in Influencing Public Procurement Processes | <ul style="list-style-type: none"> • Inefficiency • Inadequacy • Lack of Technology • Human vs. Technology • Risk • Linkages | PEOPLE |
| | THEME 2: Capabilities, Innovation and Adaptabilities of Employees | 1. Adaptability amidst Changing Work Environment | <ul style="list-style-type: none"> • Policy and Process Change • Training and Learning • Technology • Ethics • Circumstantial Change | PEOPLE |
| | | 2. Strongest Capabilities in Job Performance | <ul style="list-style-type: none"> • Work Ethic • People Skills • Skills and Learning • Leadership Skills • Integrity | PEOPLE |

| | | | | |
|---|---|---|--|----------------|
| | | 3. Innovative Procurement Processes Utilised | <ul style="list-style-type: none"> • Validation • Technology • Planning • Regulations and Compliance | PEOPLE |
| <i>Evaluate public procurement policies and principles of the HEIs in compliance with the operations of agility, flexibility and responsiveness in their daily tasks.</i> | THEME 3: Public Procurement Processes and Understanding | 1. Understanding of the Public Procurement Process | <ul style="list-style-type: none"> • Sourcing of goods within the public domain • Holistic process of acquiring goods and services • Public Funds • Compliance • Service Delivery • Supply chain process | PROCESS |
| | | 2. Procurement Process at Institutions | <ul style="list-style-type: none"> • Procurement Process • Centralised versus Decentralised | PROCESS |
| | | 3. Current Supplier Relationship Management Process | <ul style="list-style-type: none"> • Absence of relationship • Physical supplier relationship • Verification • Feedback | PROCESS |
| | THEME 4: Public Procurement policy and principles | 1. Importance of Public Procurement Principles | <ul style="list-style-type: none"> • Guidance • Control and Governance • Management and Improvement • Ethics | PROCESS |
| | | 2. Procurement Policy currently in place | <ul style="list-style-type: none"> • Updated Regularly • Effectiveness | PROCESS |
| | | 3. Main Procurement Principles that are followed | <ul style="list-style-type: none"> • Fairness • Competitive • Transparency • Accountability • Integrity • Value for Money | PROCESS |
| | | 4. Public Procurement Policies influence on Operational Processes | <ul style="list-style-type: none"> • Responsiveness • Flexibility • Agility | PROCESS |

| | | | | |
|--|--|--|---|---|
| <i>Analyse the public procurement system performance of environmental and organisational contexts being used in the procurement systems of the HEIs.</i> | THEME 5: Technology and Public Procurement | 1. Influence of Technological Advancement in Public Procurement | <ul style="list-style-type: none"> • Environment Setting • Organisational Setting | TECHNOLOGY |
| | | 2. Recommendations to Alleviate Barriers to Technological Implementations in the Public Procurement System | <ul style="list-style-type: none"> • Comprehensive System • Procurement Focus • Training and Development • Linkages • Structure | TECHNOLOGY |
| | | 3. Potential 4IR Technologies Integration into Procurement System at Institution | <ul style="list-style-type: none"> • Not Aware • AI for Procurement • Cloud Technology • Eliminate Errors • Fraud and Corruption | TECHNOLOGY |
| <i>Develop a framework that is innovative and technologically advanced in supporting HEIs to deal with public procurement system challenges.</i> | | | | CEATION OF THE STUDY'S CONCEPTUAL MODEL Section 5.9 Figure: 5.19 |

Source: Compiled by Researcher from the Information Analysis of Nvivo – 2022.

6.6 ANALYSIS OF DATA AND FINDINGS

The findings of the study are discussed in detail as per each sub-research objective of the study linked to the primary theme and construct. This chapter presents the data analysis and findings. Snippets of analysed data are presented verbatim, showing a clear indication of how themes were developed from the coded data. The aim of the discussion of the findings is to interpret and convey the relevance of the study's results in light of what was known about the research topic under investigation, from the completion of contextualising the research problem. Thus, the findings presented are unique to this study and will offer insight into public procurement systems' manifestation of challenges at HEIs in South Africa.

The following abbreviated code names were used to maintain anonymity of participants:

P.O A to P.O R – Procurement Officer A, Procurement Officer B etc.

M 1 to M7 – Procurement Manager 1, Procurement 2 etc.

6.6.1 Theme 1: Challenges in Procurement

This theme focused on all the challenges that were raised and presented by participants of the interviews. The challenges in procurement ranged from a very general sense to that of greater concern and in relation to technological problems. This theme is in line with the '*People*' construct of the study, the challenges expressed became a clear indication of how employees work became interrupted from time to time and the stoppage of work flows which led to downtime of work. Table 5.3, displays the two primary sub-themes of Primary theme 1 (Challenges in Procurement) and the sub-themes to Primary sub-themes 1 and 2.

Table 6.3: Theme One – Challenges in Public Procurement

| Sub-Research Objective | Main Theme | Primary Sub-Themes | Sub-Themes | Study Construct |
|--|--|---|--|-----------------|
| <i>Identify and determine the systematic challenges experienced by key employees in terms of the current public procurement systems in the HEIs.</i> | THEME 1: Challenges in Public Procurement at the selected HEIs | 1. Public Procurement System Challenges | <ul style="list-style-type: none"> • Administrative • BEE • Compliance • Ethics • Suppliers • Staff • Funding and Resources | PEOPLE |
| | | 2. Technological Challenges in Influencing Public Procurement Processes | <ul style="list-style-type: none"> • Inefficiency • Inadequacy • Lack of Technology • Human vs. Technology • Risk • Linkages | |

Source: Compiled by Researcher from the Information Analysis of Nvivo – 2022.

The first main theme is supported by two distinct sub-themes. Both Primary sub-theme 1 and Primary sub-theme 2 have a total of seven and six sub-themes, respectively. The findings of the investigation allowed for the identification of the key topic. The public procurement system and technology challenges are the two key twins of the wide fundamental sub-themes that make up the procurement challenges. The difficulties that were mentioned by each participant are listed in Table 5.4.

Table 6.4: Theme One – as per Participant

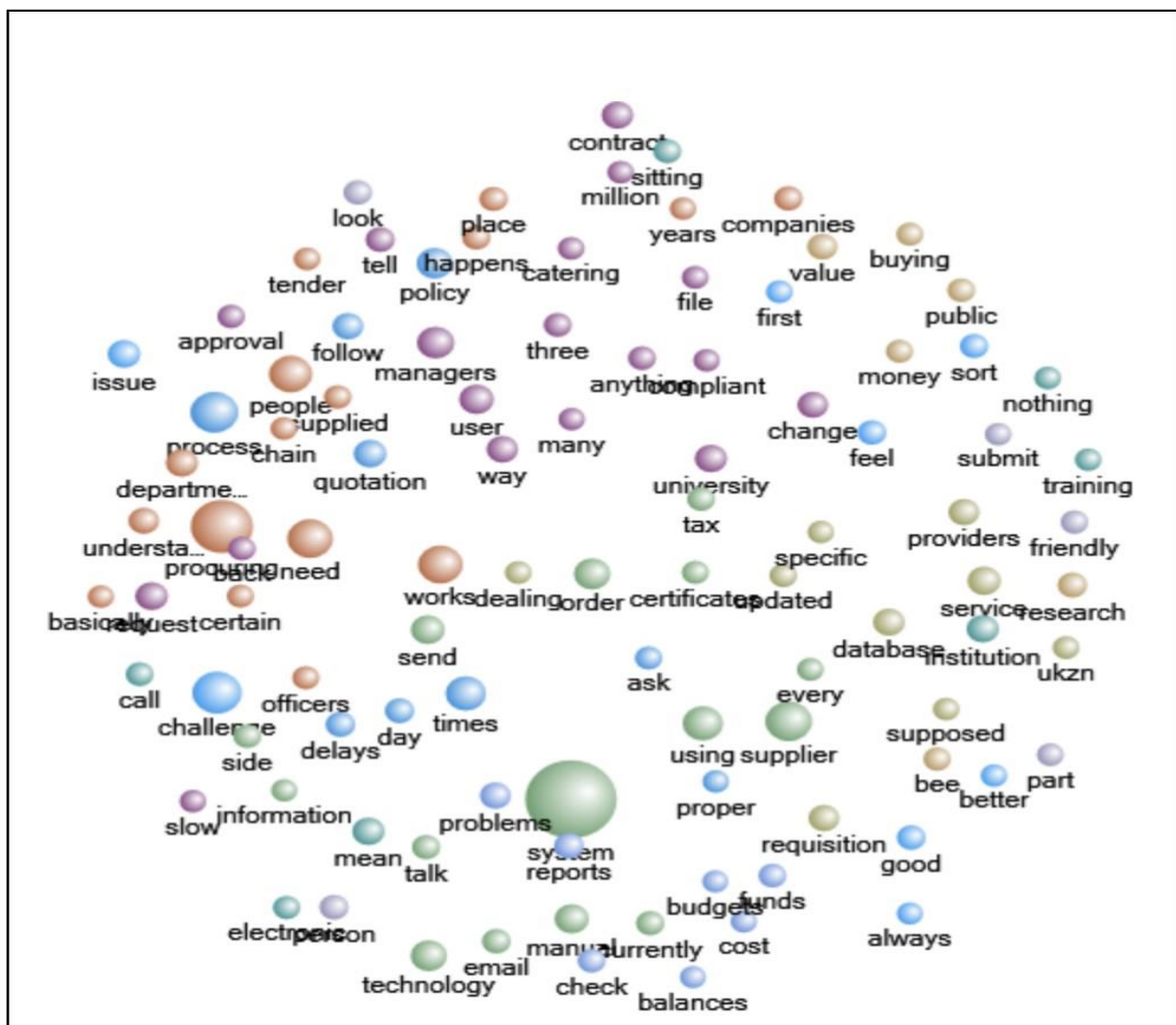
| Theme 1 Challenges in PP | P.O A | P.O B | P.O C | P.O D | P.O E | P.O F | P.O G | P.O H | P.O I | P.O J | P.O K | P.O L | P.O M | P.O N | P.O. O | P.O P | P.O Q | P.O R | M 1 | M 2 | M 3 | M 4 | M 5 | M 6 | M 7 |
|-----------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|----------|----------|----------|--------|--------|--------|--------|--------|--------|--------|
| Primary Sub-Theme 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Sub-Themes</i> | | | | | | | | | | | | | | | | | | | | | | | | | |
| • Administrative | X | X | | | | X | | X | X | | | X | | X | | | X | X | X | X | X | X | | | |
| • BEE | | X | | | | | | | | X | | X | | | | | X | | | | X | | | | |
| • Compliance | | X | | | | | | | | | | X | | | X | | X | | | | | X | | | |
| • Ethics | | | | | | X | | | | | | | | | X | | X | | X | X | X | X | | | |
| • Suppliers | X | | | | | X | | | | X | | | | | | X | | | | X | X | | | | |
| • Staff | | X | X | | | | | | | | X | | | | | | X | X | | | | | | | |
| • Funding and Resources | | | X | | | X | | X | | | | | | | | | | | | X | X | X | X | | |
| Primary Sub-Theme 2 | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Sub-Themes</i> | | | | | | | | | | | | | | | | | | | | | | | | | |
| • Inefficiency | | | | | | X | | X | | X | | | X | X | | | | X | X | X | | | X | | |
| • Inadequacy | X | | X | | X | | | | | | | X | X | | X | | X | X | X | X | | | X | | |
| • Lack of Technology | X | | | | | | | | | | X | X | | X | X | | | X | | | | X | X | | X |
| • Human vs. Technology | X | | | | | X | X | X | | X | | | | | | | | | X | | | | | | |
| • Risk | | X | | X | | X | | X | | | | | | | | | | | | | X | | | | |
| • Linkages | X | | | | | | | | | | | | | | | | X | | | | | X | X | | |

Source: Compiled by Researcher from the Information Analysis of Nvivo – 2022.

6.6.1.1 Primary Sub-Theme: Public Procurement System Challenges

Administrative challenges overflowed and were a highly ranked challenge. Whilst the challenges under the administrative sub-theme are not objectively unknown, the nature in which it unfolded from the interview data was unique to this study. In this section, the researcher further unpacks the detail of the administrative challenges, which were informed by the following factors:

Figure 6.6: Cluster Analysis – Public Procurement System Challenges (*People*)



Source: Compiled by Researcher from the Information Analysis of Nvivo – 2022.

6.6.1.1.1 Sub-Themes:

- Administrative

This challenge was excessively sighted by participants as a prevailing challenge. *Bureaucracy and 'red tape'* processes and policies are at times too much to follow thereby, negatively affecting the procurement process at HEIs. It was found that at the selected HEIs, although this is good for integrity and honesty at the same time it slowed down the entire public procurement process.

As per participants the following was discussed: *<Proc Officer R> and then with regard to the actual policies and the systems as well, there are too many approvals and red tape, because the user will fill out that procurement form, then it is approved by the school manager on paper. If the school manager is not available, that sits with the requester. So I get the calls from the user, 'Well, we're waiting for this and it has not processed.', and whatever. And then I would say, 'Go back to your school', only to find out that the school manager is not available, or sometimes even when they are available, they are just slow in signing off on things. Then once the request is processed by myself, it has to be approved by them, online as well. Sometimes there are long delays from when I would process a request, to when they are approving it. And then you have the request as well, going from the user to the requester, to capture. And they capture – there are too many middlemen involved in the process.*

A study in South Africa, conducted by Fourie (2015: p. 38) indicated that despite the existing statutory frameworks, corruption is on the rise, and the problem of public procurement integrity challenges has come to the fore. Administrators and bureaucrats must make judgments, and their discretionary powers force them to evaluate the ethical component of their actions. As external pressures on public procurement are enormous and diverse, a variety of techniques may be effective in ensuring strong procurement integrity. It should be highlighted that the larger society expects administrators and bureaucrats to exhibit openness, honesty, responsibility, and bureaucratic rules. Society expects administrators and bureaucrats not to deviate far from the calls of judgements.

Procurement bullying was occurring, whereby departments often pressured procurement staff, particularly high-level academics who wanted things done on their timetable. Such academics even refuse to follow rules and attempt to push procurement staff to do the same as well.

As per participants: *<Proc Officer R> some of the academics find it too bureaucratic, there is too much red tape, and they refuse to follow it. Some of them believe that the research funds are theirs to do with as they please, they do not understand that it is theirs, but should still be administered by the university. So they want to fight with you, scream at you, and send you nasty emails. <Proc Officer A> within our processes, there is – like, we have new management, obviously the policies are changing and everything. But now there are things that cannot wait, for instance, we are now on our policy having something that for travelling we need three quotations. I think that is not conducive for the end users, because within the higher institution, we have emergencies. So it gets tricky in that way because now we end up fighting with the departments to say, ‘Procurement, this is ridiculous.’ It is ridiculous, but I think our managers or our management, they are still trying to find the best way on how to deal with this whole thing.*

Such academics even refuse to want to follow policy and try to force procurement staff to bypass policies and processes. This phenomenon is an interesting new find (specifically in public procurement) as four participants in particular from the different selected HEIs for the research discussed this. To the best of the researcher’s knowledge, no studies have been conducted in South Africa on this phenomenon specifically on procurement bullying.

As per Proc. Officer R: *Some of them believe that the research funds are theirs to do with as they please, they do not understand that it is theirs, but should still be administered by the university.*

However, a study recently completed by Badenhorst & Botha (2022: p. 1) revealed that workplace bullying is evident in HEIs among academic and support staff. According to the findings of this study, respondents encountered the most unfavourable behaviours connected to exclusion, followed by management misbehaviour, humiliation and belittlement, and antagonism. According to the quantitative findings, workplace bullying occurred to some level at the higher education institution under review. The findings revealed that the sort of job,

highest qualification, and duration of employment all had a role in workplace bullying encounters at the higher education institution under examination. To understand and solve bullying in the workplace, it is critical to analyse several elements (individual, personal, power differentials, organisational, and social) that may contribute to bullying behaviour (Badenhorst & Botha, 2022: p. 12-13).

Reluctance of committee involvement was the case for large-scale acquisitions, public procurement employees are hesitant to serve on committees owing to the possibility of fraud and corruption, which might harm anybody who serves on such committees. <Proc Manager 1> *Okay, firstly, there is your bureaucratic red tape. That is one. So meaning you are procuring something, but someone looks at the value and saying this is R20 million, so it has to go to this committee, it has to go to that committee. And the challenge that you there, is that no one wants to sit in those committees, but most people want to sit and play referees and say, you should have done this, you should have done this, you should have done that. And because of the nature of it, and the reason why most people will shy away from that, is that there is a deemed connotation of favouritism. It is like right now I do not want.*

<Proc Manager 1> *You know, one of the challenges is the fact that, firstly, in terms of our policy and processes, sometimes our users, end user departments, specifically academics, feel that, you know, it causes them to comply with the policies and the processes, they feel it is time consuming, you know, sometimes they feel – some would call it sort of red tape, and that sort of causes more delays in the system, than actually assisting them. So that is the one thing they feel, that the processes or the policies cause more delays.*

Some participants sighted the *inflexibility* action of their managers, according to the participants, their contributions were not considered since their line managers were rigid and insisted on carrying out tasks in the manner in which they thought appropriate. As per this participant: <Proc Officer B> *so that's where I'm coming from, I'm not in favour of this system. And then with all the red tape – has a policy that is ridiculous, the red tape, and still there is a loophole for people to commit fraud. I do not know what else the country can do to – you know, while there is a human element. Sometimes you may get a management person that knows it all, that knows everything – you know, they have their views, it is their way or the highway.*

Some end-users already had a supplier in mind who they wanted to work with and did not support open bidding, this was termed by participants as '*preferred suppliers*'. *<Proc Manager 3> and then another challenge is people, where they have the preferred ... and if you are going on and on and open tender or on and open procurement process, then you find that they are resistant maybe even to awarding to that winning bidder.*

A lack of planning slowed down the efficiency of the procurement process. The procurement department experienced both difficulty and irritation as a result of the lack of preparation that came from the end-user side. The end-users will always wish for their purchases to be made as quickly as possible, regardless of whether or not they prepare ahead. This puts additional stress and an added strain on the procurement department. According to Hugo and Badenhorst-Weiss (2011: p. 7), the procurement function's efficiency and efficacy can have an impact on important and essential aspects of an organisation, which is in line with the view expressed by *<Proc Officer H> that is the most problematic that people do not plan things on time. You will find yourself that things are referred to as an emergency, which are urgent –then things become urgent, which were not supposed to be urgent at the time. So people are not doing proper planning, because like in the supply chain there is a turnaround time for the requisition and the order to be issued.*

As per participants: *<Proc Officer Q> okay, I think another big challenge is maybe inadequate planning and linking demand to budget. So a lot of situations where they will be procuring items that they have not budgeted for, and that obviously creates problems further down the line, because inadequate planning can lead to major disasters later on. <Proc Manager 2> for me another challenge is, and sometimes this can become – you know, it can create frustrations all around when there is bad planning on an academic's part, you know, on the user department. It is not necessarily academics, it is end users as a whole.*

Mothupi, Mukonza, and Khalo, (2022) investigated the variables impeding procurement plan execution at a chosen national research utility. This research investigated the reasons impeding the National Research Foundation's procurement strategy execution. This is critical because, according to National Treasury SCM Instruction 2 of 2016 and 2017, several government entities severely undercut and weaken the spirit of the Public Finance Management Act, eventually wasting valuable resources meant to enhance service delivery. Finally, the

researchers discovered that certain SCM officials are disinterested in their job while aiding project managers with a procurement strategy. The survey also discovered that project managers thought their time was being wasted by doing procurement duties that were not part of their functional responsibilities. It is suggested that the heads of business units include procurement plans as a significant element in the project manager's performance agreements. Based on this data, the research finds that whether a person is an SCM official or not, if their project requires cash, the procurement function is part of their functional responsibilities and time must be allotted for it. The survey also discovered a scarcity of SCM technical professionals to help project managers with project execution as part of the procurement planning process (Mothupi, Mukonza, & Khalo, 2022).

According to the participants below, instances of behaviour that was not typical, occurred on a very consistent basis, labelled as *deviations from normal*. When it became necessary to make a purchase that was beyond the scope of the regular public procurement procedure, such as the acquisition of high-level or specialised equipment, deviations from the norm were necessary. *<Proc Manager 4> but there is a process to follow in terms of a deviation. So if you want to go use a specific supplier - for various reasons you may want that, and then you have got to follow a process, and that process sometimes, approval could take two weeks possibly, maybe more, it just depends. Ja, so at the end of the day procurement looks bad, but we obviously tell our users, yes, it is a procurement policy, but it is not like X's policy, you know, it is university policy, and we are merely custodians of the policy, we are merely here to see that when we use the policy, that it is complied with. And if it is not, then we need to guide you guys in terms of how we work around it. <Proc Officer A> I am saying the systems that are being put in place right now, are actually delaying the process. We are not working effectively and efficiently, because with the DOA, everything has to go to so-and-so, but then there are so many reports that are being written, because, you would find that there will be an emergency in a certain department and then they cannot wait to first follow the procurement process, so they will go ahead and do their thing. And we have something called a deviation, where maybe you did not follow the procurement processes, where you need – when you will have to get three quotations, but because this something is urgent, you will have to go with the first person who sends you a quotation. In order to do this, sufficient reason and incentive at the highest level were necessary. On the other hand, getting such a thing required a lot of work and went against company policy.*

Similarly, unanticipated expenditures placed a significant amount of strain on the procurement process; these kinds of *emergency purchases* added pressure to the institution's procurement process. A procurement official's discretion being used improperly is a kind of procurement corruption. The public procurement framework in South Africa makes it clear that the government may veer from its customary, more rigorous procurement processes in favour of a more flexible approach during emergency circumstances. In order to facilitate the quicker acquisition of products and services needed within a particular situation, emergency procurement eventually places a greater degree of authority on purchasing authorities than is often the case (Rankin, 2021: p. 85).

As per participants: *<Proc Officer F> the first challenge is being under pressure a lot. You know, when you have to attend the emergencies every time – okay, maybe I can make an example. I am a procurement officer, but I am dealing more with projects. You will find that there is a burst pipe, there is a pipe that burst and the water is leaking, and it is a weekend, but I have to organise a site meeting or a site briefing urgently, and come and assess – and come to work and see how can we – yes, those are the very – hey, it is very challenging sometimes. For me, that is the biggest challenge that hinders my capabilities, because sometimes you find that I fail to get people to come and sort out that, but on the report, it is going to say we did inform supply chain, and they did not help us. Pipes bursting and other such catastrophes came as a complete surprise to everyone. In these circumstances, it was impossible to follow conventional procedures. To begin addressing the urgent situation, it was necessary to first acquire the service.*

The practice of *load shedding* is now ingrained in the South African way of life.

As per participants: *<Proc Officer F> the second challenge, maybe in our environment, even during the week or working days, there is a lot of emergencies things. Just like they are going to put the requisition now – okay, let me say like, we are on a load shedding now. We have generators, but you will find that they did not check the petrol on the – or the diesel. So they are going to put the requisition and tell me that we need diesel by the end of today. I think that is another challenge. When there was an increase in demand placed on the national electrical system, a practice known as "load shedding" would include turning off the power for set amounts of time at such intervals. As a result, procurement was not exempt from the difficulties that it brought. As soon as the load shedding was put into effect, all of the systems went out,*

which is why there were delays.

Lack of training – at one institution, there was a dearth of training provided, which creates issues when carrying out procurement, particularly for staff members with little expertise or when there is a change in the procedure, as explained by <Proc Officer N> *I can maybe sum it up in a few words; a lack of training. A lack of training. Every time the system changed, there is no training. Everything that I had learnt on the system on how to work on a laptop and computer, is from experience and colleagues around me, but we have not been to any workshop or any Excel or Microsoft training, nothing, nothing, nothing.* The foundation of value generation and organisational performance is procurement. Therefore, in order to address both present and future demands, successful organisations invest more in the skill and capacity development of their staff. Therefore, training and education are strategic instruments that might make it easier to execute best practices for procurement. Universities are in a superior position to develop, hire, and continuously provide skilled workers since they are the centre of knowledge creation (Dlamini & Mulaudzi, 2016).

It was highlighted by a participant that at their HEI the *procurement system lacks intelligence*, thereby the system is not able to spot irregularities and these irregularities are only picked up by human knowledge. Should the employee working with the system not see these abnormalities of irregular activity it will not be picked up at all by the procurement system. This was because there were instances in which members of the institution's employees owned companies outside of the institution and used those enterprises to supply the institution. As a result, there was a need for a system that could identify and stop the occurrence of such an event. <Proc Officer L> *another challenge is that in our system we do not have the intelligence and – because in the normal procurement, when you are doing like tenders, you get to check the directors for each companies against the conflict of interest, where people, they will do conflict of interest, they register to say this the company I own. So at this HEI we do not have that intelligent system that can pick up if any of the companies that are doing business with us have people related to it, from the employees of University X.*

A study completed by Hickok, (2022) states that in order to deliver public services or exercise their enforcement powers, public bodies all over the globe are increasingly using artificial intelligence (AI) and algorithmic decision-making systems. Similar to the commercial sector, the public sector uses these technologies to boost efficiency, speed up transactions, and reduce costs. However, the primary purposes for which public organisations are set up are to fulfil the needs of society's citizens and to safeguard their safety, basic rights, and welfare. Currently, public sector organisations are using AI systems at different administrative levels without doing thorough due diligence or maintaining strict oversight or transparency.

- BEE

Participants explained that although it was claimed that BEE would put an end to the inequities of the past, it brought about certain obstacles in the area of procurement with specific reference to *compliance, favouritism* and *higher prices*. Sometimes compliance was difficult because suppliers were dishonest about their BEE compliance. Furthermore, some institutions were not following rules. There was apparent favouritism with friends as suppliers instead of following policies and processes. For HEIs becoming BEE compliant meant that some BEE suppliers raised their rates, yet the institution was still obligated to buy from them because of BEE. As a result, this institution earned a poor BEE rating. Under the supervision of the Department of Trade and Industry (DTI), the B-BBEE Act 53 of 2013 was passed into law to ensure a just representation of black people in South Africa's economy (Shai, Molefinyana, & Quinot, 2019: p. 5).

As per participants: *<Proc Officer J> and with the BBBEE currently in place, some suppliers – I do not know who managed that, but I know that central procurement are responsible for monitoring all of them, that compliance, but some suppliers, I think they are less behind in terms of balancing the BBBEE level, their level, in terms of government regulations. <Proc Officer Q> especially when I was working at the municipality, there was a system that we employed, whereby a job will be granted to a company that has BEE compliance. Unfortunately, here at the university, we are not the ones that are actually vetting the BEE certificates, but when they do come to me I do check levels and stuff. But I do not think that is a specific criterion that is used here in our department. <Proc Officer L> so that is why you find our institution is level 8 for BEE, because there is nothing in the procurement that they*

are doing to make sure that they improve their BEE status as the institution, because the procurement process is not controlled properly. And you will find that sometimes the users, they even get to just receive goods without even requesting quotation, because they know those suppliers may be friends or anything. This is something, others they call dark purchasing. I would say our institution is clouded by the dark purchasing, because there are uncertainties. <Proc Officer B> and they ask the government, they get less and less, there is student fees, other income streams and grants, etcetera. Research grants or whatever, is the income for the institution. But yet sometimes they will pay a higher price, because you want to use a higher scoring BEE company. So it is also a catch-22. <Proc Manager 3> the BEE, I think it is a challenge sometimes, not all the cases, because we end up spending more than what you should buy, because if I'm saying I want to uplift the black companies, and then I'm buying something for – which can cost me R10, I am buying for R150, but the same guy is going to buy that thing to the same white company, which we say we do not want to deal with them, and it – for me, there is no value for money, this BEE thing, it is a good thing to uplift companies, but I am saying now the challenge now, it is – when it comes to the value that we get in return, it is not up to a standard.

When businesses interact with the B-BBEE process, procurement with a preferential treatment factor is taken into account. Therefore, a company can choose to work with a company that has a low BEE rating but more black ownership, which boosts its own ratings. This is in reference to a supplier of products or services.

- Compliance

Compliance presented difficulties in different ways. Non-compliance in public procurement is a common factor that affects the effectiveness of the system as a whole. Non-compliance issues must be identified and rectified before they can cause further problems in an already complex public procurement system (Gabela, 2017).

As per participants: *<Proc Officer O> when I joined the university, I think they were not updated to say SARS has changed their system from the manual tax clearance certificate to the automated tax clearance certificate. So when I joined, some service providers were still sending copies of tax clearance, and do you know that those things, you can change them to*

say if you have non-compliant, you can change and say I am compliant. You know, with technology we can do anything. I ended up saying to my manager, can she remove me there, because it seems like I am fighting with people, to say the certificate says you are compliant, but when I verify on the SARS e-filing, it says you are non-compliant. Yes, we do business with people who have a non-compliant tax status. <Proc Officer Q> another challenge is non-compliance with the supply chain policy and regulations. We do have this – it is actually more often now than before, which is not a nice thing. <Proc Officer B> so up to values, like for example, CIDB 1, 2, 3, 4, 5, they can do up to R10 million, R7 million. So we had work to give out, about R400 plus million. So it was two buildings, one in Martizburg, one in Durban, and this happened like a few years back, maybe 2019, 2020, somewhere there. So for CIDB 9, on our panel we had only two contractors. And management went forward and asked the two contractors to quote on that tender, for that value. Now is that acceptable now? Is that acceptable? So what I am saying, they left themselves open to collusion.

Compliance lacking – compliance was generally inadequate in the selected HEIs. This was in reference to supply chain policies and regulations. When it comes to numerous bids for products exceeding specified criteria, the quotation procedure was also not followed completely.

Failed procurement system – The existing system of public procurement is failing at the governmental level, as one attendee made an intriguing remark. This implied that organisations or institutions would have the same vulnerabilities if they adopted the same practices. As a result, national policies needed to be updated.

The PFMA – This Act was formed to provide rules for how the national government and province governments manage their finances, to make sure that all of their income, expenses, assets, and obligations are handled properly, to define the duties of individuals tasked with managing their finances, and to cover any related issues. <Proc Manager 4> *firstly it is the issue of the PFMA. I find that the fact that we do not really – we are not really governed by the PFMA, there is a lot of grey areas that we find ourselves in, because we are not really governed by the PFMA, but a lot of public procurement issues are basically addressed by the PFMA. So that creates a lot of grey areas because we are not governed by the PFMA. So like there are a lot of issues, like the issue of contract management that I have explained, it is really*

not clarified in our policies, it is not clear, and then it creates a lot of challenges, because really if there is no contract management, then we cannot deal with issues of supplier development, etcetera. At HEISs the PFMA contained several ambiguous areas, yet it was nonetheless widely employed in public procurement. This resulted in inconsistencies in procedures that are not covered by policies, such as contract management. Furthermore, since most institutions were under Schedule 3A, they were excluded from the PFMA, making it harder to manage procurement and giving end-users greater flexibility in terms of suppliers and proposals.

- Ethics

Due to unethical behaviour, the ethical component was laden with problems that needed to be solved at HEIs. In South Africa, *fraud and corruption* are nationwide public procurement issues. This permeated HEIs as well. There was misuse of finances, favoured suppliers, and persons forming their own businesses and gaining university procurement. South Africa has seen a gradual economic decline in recent years, necessitating a renewed emphasis on the efficiency of state procurement. On this issue, the South African presidency received part two of the report of the enquiry into claims of state capture and corruption in South Africa's public sector in February 2022 (Guppy, 2022: p. 1). The necessity for this Commission (the Zondo Commission) was to investigate issues of South Africa's governmental procurement, specifically fraud and corruption. According to the report, South Africa's President, Cyril Ramaphosa, acknowledges that significant work is needed because public procurement procedures follow unethical methods, resulting in widespread corruption. The President went on to say that taking the necessary steps to protect the country's public resources required great care and effort. The Commission made an important recommendation to the President: establish a Public Procurement Anti-Corruption Agency that is impartial and capable of assessing current operating public procurement processes. This advice then closely correlates with the feasible proposition made in the draught Public Procurement Bill in 2020 for the formation of a South African Public Procurement Regulator (Guppy, 2022: p. 1). The public procurement system at HEIs is prone to *bribery*, and there are no effective system security measures in place to prevent it. As a result, some suppliers would do their hardest to get access to the system via the back door. According to the OECD (2022), public procurement accounts for a significant portion of government spending worldwide. Furthermore, they emphasise that

their research has revealed that, despite the existence of appropriate regulatory and strategic institutions, accountable business conduct in public procurement is very low. Surprisingly, this should not be the case; according to the OECD (2022), governments should work to educate policymakers and procurement professionals on the economic benefits of incorporating responsible ethical business practices into public procurement supply chains.

Klaaren, Belvedere, Brunette, & Gray (2022) point out that South Africa, like many other states, relies largely on its public procurement system but also has ongoing corruption problems inside that system. However, it has separate regulatory frameworks for anti-corruption and public procurement. Anti-corruption was viewed as a secondary rather than a main priority in the earliest phase of post-apartheid reform and design of public procurement, despite awareness of massive corruption in the last decades of apartheid. In the anti-corruption regime, regulations against corruption in public procurement have mostly taken the shape of criminal offenses and administrative rules that apply only to the government and the public procurement system. Neither of these has been very successful. The potential for corruption in public procurement to continue growing has been created by the neglect of the overlap between these two regimes (Klaaren, Belvedere, Brunette & Gray, 2022, p. 2). As stated by: *<Proc Officer Q> I am just talking about it in terms of fraud and corruption, and mismanagement of funds and stuff like that. If you are in procurement – so if you are employed at the university, you are generally not allowed to have a registered business with the university, because obviously you cannot be giving work to yourself or to your family members. So there were situations where we picked up people – other staff members that had companies on the system, and orders were being placed for a couple of years to these companies. <Proc Officer F> two, they are going to try to bribe you. Our systems, are not protecting us from bribes. I do not think the system can come up with anything as a preventative for that, but we are exposed to our suppliers, in such a way that some of them, they will even follow you after hours, yes. Ja, so that is the biggest challenge.*

Irregular expenditure – Irregular spending was a contemporary reality at HEIs, owing to weak financial controls and when end-users contacted suppliers directly.

Manual requisitions leading to favouritism – Favoritism of suppliers was also seen, particularly when handwritten requisitions were used. Because there was a lack of control measures when it came to manual requisitions at HEIs, users may then utilise their friends as providers. In particular, a participant expressed: *<Proc Officer O> Say, please submit a quotation. And then my friend submit, because there is no control preventing me from requesting a quotation from my friend. And then maybe if I have four friends, and the policy says I need for quotations, I can go to all those four friends and say, you are going to be the lowest, she is going to be the second, and then I rotate my friends among, you know, every time when I do procurement. So it is having a possibility of fraud, because there is no control. So it is the database, the database will reduce the possibility of fraud, right now it is not working this way to prevent fraud.*

Political purchases – There was also a component of political buying in which students would demand particular products even if they did not necessarily need them, and if it was not bought, this may result in protest action on their part. This was one of the aspects of political purchases. While a *risk management framework* was beneficial in that it helped reduce the likelihood of fraud and other hazards, it was also troublesome in that the checks and balances required a significant amount of time, which led to procurement cycles that took an excessive amount of time.

Procurement audits – when it comes to problems with supplier performance, procurement is often at the forefront of audits. Since their primary role is buying, this is outside of procurement's purview. The end-user should be in charge of managing supplier performance, however, procurement is often contacted and asked for performance reports.

- Suppliers

This challenge provided information on specific supplier problems. *Supplier relationship management* was lacking, as was highlighted in prior themes. However, this subject further demonstrates how problems like favouritism, nepotism, non-compliance with paperwork requirements, and irregular pricing arise when there are no ties with suppliers (explained in detail on the theme of *current supplier relationship management process*).

As per participants: <Proc Officer F> the first challenge, it is the relationship with suppliers. I will put it as a challenge. You know why? Because as a human being, you find that there is some suppliers that you know from outside, like from church or you are coming from the same area, that are expecting you to do favours for them, and they will always put pressure on you, to say, no, please come up with something. <Proc Manager 2> I do think that we need a little more work on how we manage our supplier relationships, not so much in terms of maintaining them, but dealing with non-compliance. <Proc Officer P> basically it would be like – okay, like you said, we do not have much of the supplier procurement relationship. <Proc Manager 3> other challenges, in terms of another service providers, you find that some people will be for either tenders or quotations, and when it comes to time of delivery, then you find that due to limited resources that they have, they are unable to deliver or they will take for – like longer time to deliver, I think maybe because in terms of sourcing funding from their side, of the supplier. <Proc Officer J> and secondly, the delivery timeframe, sometimes if you ask for 10, they deliver two and say, 'Wait for two weeks, we are still going to source the other eight, the balance of what you have ordered.' They don't supply the quantities as is, most of them.

The desire to establish enduring connections is brought about by the commitment between buyers and suppliers. In order to gain a sustained competitive advantage and enhance procurement performance, both buyers and suppliers must cultivate high levels of commitment, which is also regarded as a major driver of long-term partnerships (Kimario, Mwagike, & Kira, 2018: p. 2714). According to Loice (2015), a firm's procurement success is significantly influenced by its dedication to the buyer-supplier relationship. Relationship management experts view commitment in terms of customer loyalty to develop suppliers via feedback on potential future development areas to be essential (Kimario, Mwagike, & Kira, 2018: p. 2716).

Supplier Preferences – end-users gave certain suppliers preferential treatment, which was against the institution's policy. Furthermore, there were *Delivery* difficulties. Several suppliers failed to provide goods and services on schedule. Some institutions even waited for delivery for two weeks, which was improper and dishonourable.

Changing banking details – Suppliers would alter their banking details without informing the institution's procurement department, causing problems with the payment process, since all banking details are required to be validated to prevent fraudulent payments. Some suppliers raise their *pricing*, particularly if they are on the database; however, another supplier may provide the same item at a much lower price but may not be on the supplier database.

- Staff

Knowledge, understanding and experience - Staff challenges varied at the selected HEIs.– There were certain knowledge and experience gaps amongst procurement employees, which sometimes presented problems. Employees would need to make sure that the process was not affected because, for instance, a staff member may not have a clear understanding of a procedure relating to bids. Additionally, employees in other divisions may not be aware of each other's responsibilities. Some employees made mistakes in the quotes process because they did not know how the supply chain or procurement processes functioned. Additionally, staff members misunderstood legislation and changes to policies, sometimes to the point where they unknowingly breached them.

As per participants pointing out the following: *<Proc Officer K> I would say that the participants in the system itself, in the procurement system itself, are not people who have a full procurement background as such, they are very technical or they are just subject matter experts in their fields, and they know about their need, more than they know about the procurement system in general. It is those gaps and those dynamics that you find. <Proc Officer Q> Because it happens where they do not really have the knowledge of how procurement is or how the supply chain works, but yet they are the ones that are requesting the quotations, which makes no sense to me, honestly, but that is just the way it is, unfortunately. So in terms of no knowledge or skills, they are not equipped, they do not have a procurement or supply chain background, yet they are the ones requesting the quotations. <Officer R> and then people not understanding the policy, that does tend to get in the way of my work. And then we have central finance as well. They – so central procurement, they would implement certain things. And we at the college level are not aware of it. <Proc Officer C> So the problem that we encounter is that if, let us say a member or a staff from the creditor sector or from the stores section, if they do not understand the procurement section, that also creates problems when you are trying to*

explain to them in terms of why they need to do something in a certain manner, or why something cannot be done. So think all those departments that are interlinked should understand the process and the system holistically.

Knowledge application – one participant said that limitations on procurement procedures prevented information from being used effectively. This was crucial for risk mitigation, but it prevented the application of information to processes for continuous improvement. Furthermore, the opportunity to interact professionally with stakeholders and suppliers was limited by the strict policies and rules (*Stringent policies versus approach*) – This may convey the institution's approach the impression of being harsh.

- Funding and Resources

The South African government faces the difficulty of inadequate resources, making it a problem that affects the whole country (Walters, 2013: p. 34). Therefore, the government must provide for a wide variety of public services, including higher education institutions, public schools, social and security services, health services, and a great number of other public services, with the limited resources that are available.

The procurement process continued to face difficulties with funding and resources. Notably, the end-users had the intention of making purchases, but they did not have sufficient funds designated for the transaction. The whole of the HEI procurement procedure would be carried out, and then it would be discovered at the very end that the various cost centres lacked the monies necessary to complete the process. These eventually get caught in the system, and procurement is urged to disregard the financial element, which is neither ethical nor professional.

As per participants: *<Proc Officer H> another big problem is budget. People want to – they put in requests for products or goods or services, and they do not have money for it, they have overspent. So there is a big issue with budgets. <Proc Manager 5> Maybe the one obstacle I did find in my new role is, we have – you know, the university has a huge problem with debit balances, and we have – like I said to you earlier, we have administrators, who because they have been told to do it, they know very well that there is no funds, but they still go ahead and*

put the order on the system. <Proc Officer C> I would not say fundamentally that much, but we do have challenges. For example, funds, when there are no funds in a particular account or cost centre, it goes into insufficient, whereby we have requested that it should not actually even come to us if there are no funds. The requisition should not come to us if there are no funds, but unfortunately, it does. <Proc Manager 2> I think it is a problem, because we have public money in the form of a subsidy, but we also have money in terms of tuition fees. <Proc Manager 3> okay, there are, I can say probably like maybe like two parts on this one, where you are dealing with research, then with the researchers as well. Maybe the first one, it is when the researcher, they do maybe submit their proposals to the potential funders, and in – on that proposal they have already maybe preselected a service provider maybe, who will help them to do whatever the study that they are doing. Then in terms of that, there is no clarity in terms of how they came about in appointing those people, or in that service provider, and then it comes to us as a contract, maybe like the – also with an SLA being signed. So now we have to just implement from our side, where there was no process that has been followed in sourcing that service provider. <Proc Manager 4> from a research perspective, again that is the feeling as well. And now there is so much focus on research, you know, and the researchers sometimes feel that in some instance, and to follow the procurement policies and processes, and in terms of procuring from X suppliers face a challenge, because they – and you know with researchers, they have limited funding, so they want to spend every rand very carefully. They want value for money. <Proc Officer F> But in most places they put you – like in our environment, we do not have the cell phones from – we are not given the cell phones, so there are cases where you that our landline is not working and you need to organise site meetings or you need two phone suppliers for any specific challenges. You end up using your own cell phone.

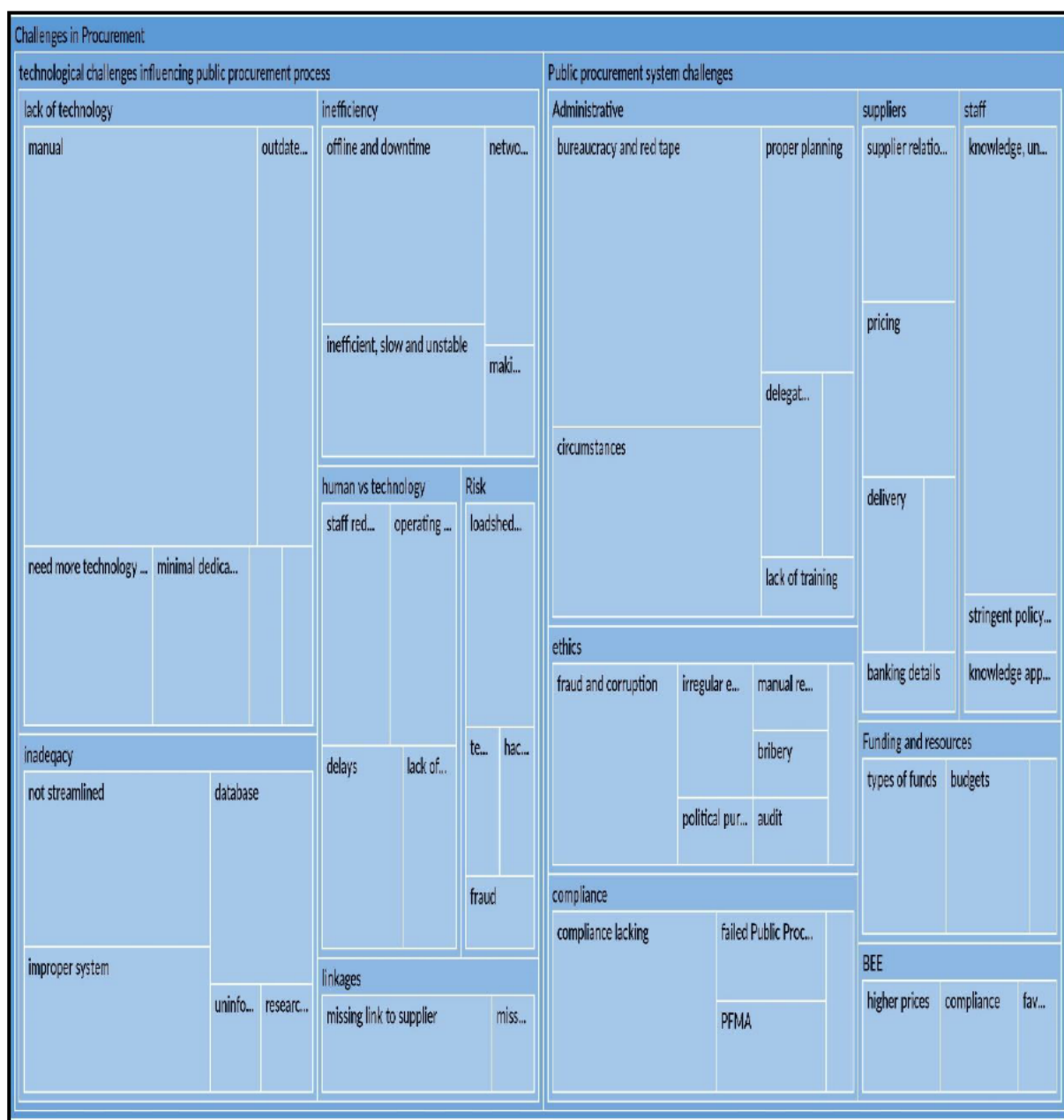
Types of funds – In addition, the many kinds of financing became a source of contention. There were several distinct categories of money available to use in educational establishments of a higher level, such as administrative funds, research funds, tuition funds, and many more. As a result, there was no universally applicable strategy, and the PFMA did not adequately cover all bases. In addition, a certain amount of money had to be spent within a predetermined amount of time. These ambiguous areas put an additional strain on the procurement process.

Use of own resources – When the phones at the office were not working, employees sometimes had to utilise their own resources, such as their personal phones, to get in touch with the companies they needed to do business with. Because of this, additional costs were incurred by the employees, which were not necessarily paid. Public sector procurement, according to the Chartered Institute of Procurement and Supply (CIPS, 2022), should systematically help public organisations (organs of state) in maximising effective outputs. This should happen because the funding came from public taxes and grants. Public procurement must ensure that these monies are managed in a way that ensures value for money and accountability in all government sectors. The primary goal of any public sector procurement function should be to offer vital public services while also providing value for money and supporting all government processes and procedures at all levels within a given country (CIPS, 2022).

6.6.1.2 Primary Sub-Theme 2: Technological challenges in influencing the Public Procurement processes

Technology was a vital facilitator, but owing to several technical obstacles, not all institutions were at the technological level they should be. This main subtheme looked at the difficulties associated with technology and how it affected the public procurement process. Technological advancements have freed up procurement experts to concentrate on the big picture. Procurement's expanded strategic role in gathering, evaluating, and processing big data to promote efficiency, effectiveness, and profitability was made possible by technological advancements as well. In addition, new tools for public procurement cut down on expenses and wastes associated with coordination. While the potential of new technologies is immense, the procurement industry's exposure to them is still in its infancy. Therefore, it is essential to study the barriers that procurement professionals face while trying to implement these cutting-edge technologies (Khuan, 2019).

Figure 6.7: Hierarchy Charts – Public Procurement System Technological Challenges



(People)

Source: Compiled by Researcher from the Information Analysis of Nvivo – 2022.

6.6.1.2.1 Sub-Themes:

- Inefficiency

Inefficient, slow and unstable – The excessive number of screens and choices in the procurement systems was seen as slowing them down. Additionally, since the system lacked full supplier information, employees still had to contact suppliers to learn more. The system also updated information very slowly. The procurement system would not properly update even when it was necessary to make changes to the procurement staff's access privileges or location. The system would still show a staff member's previous job and information, for instance, if they were transferred to a different school or department. There was also a challenge with the speed of the network at the HEIs. If the network was moving at a slower rate, the system would be inactive, and users would be unable to do any kind of processing.

As per participant views on inefficiency: <Proc Officer N> *the order system at the moment is too long and there is too many screens, there is too many menus that one has got to – you have got to work on it continuously to become an expert on the system. That is one of the challenges. Like when you get new members of staff, it is very difficult to teach them.* <Proc Officer R> *and that account, when I send an order, then I find out that account is on hold. Then I have a user that is waiting for some re-agent[?] or whatever it is, urgently. It is a slow process, it causes delays, because someone is trying to find things and going through files and looking for information, so ja, we are backward.* <Proc Manager 5> *the one thing that we found out, is when the administrators move, what happens is on the system they would have their name and which campus they are on, which building they are on, and we do not have a system, where if they move, that it is updated.* <Proc Manager 1> *But also like when it comes to our technology where we are sitting, it is also – I do not know whether you call it technology, but whether you call it technology or what, but the – the technology is there, but the slowness.* <Proc Officer J> *I can say the system. Ja, the system, because we are depending on the system, so ITS, sometimes it is a problem, because sometimes it hangs, so it does not – it does not notify you.* <Proc Officer F> *Then also the challenge is the system. With everything done online, while the system is off, you cannot do anything.* <Proc Officer H> *like even now we have a problem with the network, it is on and off, so this makes me think back to the olden days when we used to do things manually. With the manual system, there were no network issues. Ja, so systems,*

I do not know what is the issue with systems. I <Proc Officer M> Well, I do not know, there is not much that I have experienced, except that the actual system problem, where you do have from to time, where the system will be down, no one informs you.

Offline and downtime – In addition, because the procurement system sometimes went down and also experienced outages, which resulted in delayed processes. Even the IT department's scheduled downtimes were not informed to the procurement staff, which resulted in lost time and efforts in processing since the employees would be aware of the situation.

- Inadequacy

The actual systems that were put into place were inadequate, and there were many different reasons why this was the case. There have been concerns that the procurement systems at certain HEIs are flawed. The present information technology support system at one institution was insufficient since the procurement system was intertwined with a large number of other unrelated subsystems, such as HR, Students, and other academic support systems. As a result, there was a need for a distinct and specialised system for procurement. In connection with the aforementioned, a greater number of participants said that the procurement system was not sufficiently streamlined for efficient procurement procedures since it was a subset of other systems. Integration and simplification of procurement procedures have to be increased to move toward a more specialised system.

As per participants: *<Proc Manager 2> No, we do have an ERP, but we do not – it is almost – I do not think that our IT system is great at all. And this is not only in procurement, it is multiple areas. I think it was built as a student system, with a slap on for finance, HR and all the other things. <Proc Officer M> Well, if you are talking about challenges with our IT department, like I said, sometimes they have upgrades, and then we do have a problem. <Proc Manager 1> and the reason why I am going to make reference to it, is that we are in a university set up, and we are using IT. IT system is university designed, and it is a student management system, which has got a finance component. So what you do is that technology – whilst technology is being used, but we do not have the best of technology to enable procurement processes. <Proc Manager 5> We are using an IT system and we are using iEnabler, and they do not talk to each other, in that our cost centre reports balances. <Proc Officer Q> There is no centralised*

or integrated system, which creates a challenge, because also in terms of lead times or service delivery, that could speed up more if we had a more integrated system., like an ERP system. <Proc Officer C> we have research grants, that's for the research departments. So now the bottleneck that we find in the research grant is that they cannot actually included in our ERP system, our current ERP system, for whatever reason. We have tried for many years. But I think the challenge is with research as well at the same time. <Proc Officer A> and on the other, our system is made in a way that, when you are sending me a requisition and I see that it is not compliant, obviously I will reject it. However, you will only see the email that I have rejected it, meaning the system – you know, because it was going to be easier if the system had some column somewhere to say, 'I am rejecting this req because of one, two and three. <Proc Officer L> and another thing is that, as I have said earlier, our database, it is not user-friendly, you cannot search a commodity. So it is very hard to get a service provider. <Proc Officer O> The first challenge I have experienced was the database, that the university does not have the database. <Proc Officer Q> if I compare us to other institutions using SAP, their system is so much better; there is integration, there is supplier relationship management. There are so many factors that that system has, compared to the university. Here at the university, we do not actually even have a supplier database. I know it sounds shocking. <Proc Officer E> so you have been asked to work on a specific system, and let us – an easy example is you would need to vet any requisitions over R30 000, to make sure that they are BEE compliant, their tax is compliant. And if you had a system that was updated, you have got your specific suppliers loaded on the system, if you go and click on their creditor code, it should have an updated BEE, it should have their updated tax clearance, instead of every time that a said buyer is dealing with a specific requisition, they need to now request this information, which is a big – you know, that could be sorted out much easier if the database was updated.

Outdated system – at the selected HEIs, the procurement systems are antiquated and are unable to carry out efficient procurement procedures in comparison to more modern systems that are now available on the market. One of the participants said that the present procurement system at their institution did not have a 'research' component, which was essential for the buying of research-related goods using research funding. Furthermore, the procurement employees were unable to justify the rejection of a request because the technology they used did not enable them to do so. The end-user will not understand why the demand cannot be fulfilled, which would leave them confused. Due to the fact that the supplier database often had errors, was not

kept up to date, and was not user-friendly, this was one of the most important issues. In many different types of institutions, the databases lacked all of the essential supplier information. It was impossible to look for potential suppliers using this system. Because of this, it was challenging to maintain contact with suppliers and to connect requisitions to suppliers in order to get quotations.

- Lack of Technology

The use of technology in public procurement may boost openness and make it simpler to participate in public tenders, and some would even go so far as to call it a need of the contemporary public procurement process in the name of fairness, equality, and transparency (Fourie & Malan, 2020: p. 13). The selected institutions of the study were cited as having glaring inadequacies in their technological capabilities. In contrast to their automated counterparts, manual procedures were still widely used by the selected HEIs.

As per participants responses on the lack of technology: *<Proc Officer N> No, no, no. I mean, when you – we were supposed to go paperless. We were supposed to go electronic, but now it is not working. As I said, we were supposed to go paperless, we are still dealing with reams and reams of paper every week. <Proc Officer A> Because we are now, instead of us being a university of technology, we are mostly in paperwork, we are doing reports day in, day out, which actually delays the actual moving of the procuring system. <Proc Manager 4> the operational processes are still pretty much very manual. We still even have to file documents in our store rooms manually. No, our systems do not really talk to each other from the beginning of the process to the end. There has not been any technological advancement. <Proc Officer R> I know assets, my colleague, her system is not...her system is not – she does not have an online system, she has files and files and piles of documents that she has to work through. So ja, we are way behind in terms of advancements to our policies and our systems. <Proc Manager 4> There is really not much technological advancement that exists in our institution, in terms of procurement. There really is not, because everything is pretty much still done very manually. <Proc Officer O> But now here at our institution, we do not have that system, the contract management system, which will tell us these are the rates, this is the value of the contract. <Proc Officer L> The technological challenge is that the system that we are using in our institution is not so user friendly. It needs to be fed more by the human part, instead*

of it having intelligence. <Proc Manager 4> They must be tax compliant. The same goes – okay, let us talk about tax. Now the current system that we have, unfortunately, is a nightmare, it does not give us proper reporting in terms of the expiring dates of suppliers on the database, you know, these tax certificates. <Proc Officer K> In our processes or operations, we have included more of the technological side or improvements in that way. But there are no systems or software or UD introduced, that have been solely made for procurement. <Proc Officer N> So as time goes, I want to become electronic. I mean, maybe we are just a bit too slow to keep up with that technology at this institution, And well, as well for our employee size, if e-procurements come – I mean, everywhere technology is replacing humans, you know what I mean?

In the era of Industry 4.0, the main emphasis is on replacing a manual procurement process with automation utilising digital technology (I4.0 or 4 IR). Through more informational openness among supply chain stakeholders, digitisation will aid in reducing risks. Automation of the purchase process may greatly shorten the procurement cycle time and improve resource utilisation (Telukdarie, Buhulaiga, Bag, Gupta, & Luo, 2018: p. 318). Systems for procurement have progressively changed to meet changing consumer and organisational demands. Keeping a distance from suppliers and cutting costs were the key goals of procurement 1.0. As firms realised the value of procurement and improved supplier relationships, supplier relationship management gradually emerged. Establishing fair value and fostering cooperative connections for supply management are the main focuses of procurement 2.0. Procurement 3.0 controls the whole buying cycle with multi-company capabilities and is based on e-procurement technologies. By combining data from several supplier chains, procurement 4.0 digitalises the purchasing process. When a company works to create new procurement value propositions and integrate supplier management into purchasing software, a framework for Procurement 4.0 includes a variety of processes and internal changes. The company must make sure they enable digitised service procurement management and develop new digital tools and related processes (Bag, Wood, Mangla, & Luthra, 2020).

Paper intensive – printing of orders and manual data capturing were only two of the many manual procedures that were still in use. In addition, manual reporting was carried out, and each of these processes included a significant amount of paper usage. *Consequently*, a large amount of physical storage space for filing as a result of the high degree of manual printing and filing was necessary. This was both pointless and expensive to do. In addition to this, it made it more difficult to readily access information. Due to the high levels of manual labour, there was a need for more employees, however, certain departments at some institutions could not hire more employees at this time.

Contract limits – Because there were no adequate automated mechanisms in place, the employees were unable to be warned in an acceptable manner if they exceeded the boundaries of the contract. The existing manual approach does not let this kind of monitoring and tracking take place. *Notably*, any procedure that required human intervention indicated that there was a greater potential for human mistake as well as tampering with the relevant papers and prices. Therefore, there was a need for further automation in order to reduce the likelihood of mistakes and tampering.

Supplier documents and certificates – The need for suppliers to present detailed documentation was in place. This includes tax clearances, BEE certification, and any other legal documentation that was required. On the other hand, the system was unable to automatically import documents of this kind, which meant that this step had to be performed manually. When considered holistically, there may be thousands of suppliers; as a result, tremendous work was produced.

Minimal dedicated procurement system – At the institutions, there was a deficiency in the presence of specialised or separate procurement systems. Standardisation becomes difficult to achieve since each department follows its own approach to completing tasks. This is especially true with the current hybrid procurement methods used by some organisations. As a result, there was a pressing need for a high-level, specialised procurement system, such as an "e-procurement" system, that could be seamlessly integrated into the existing organisational structure of the institution and the relevant stakeholders.

- Human vs. Technology

The problems that arose with technology were not limited to those that concerned the procurement system itself; rather, they concerned how people interacted with and operated the system. In certain cases, staff members were not able to operate systems appropriately, particularly after a modification to the procurement system was implemented. This was due to the employees' unwillingness to adapt to the new environment, for example this participant stated: *<Proc Officer F> when the technology changes, maybe some of our staff members, they do not move, or they do not easily accept the changes, and that causes a lot of challenges in us as procurement – or our procurement management.*

Staff need direction on how to verify certain elements online, such as budgets and obligations connected to them. Additionally, even senior staff members such as directors lacked a basic understanding of technology and were unable to complete clearances online. Because of this, the process for procurement was held up.

As per participants: *<Proc Officer G> the challenges we have here that I would think of is maybe – but now – you know when there is a new thing that is being introduced, some people seemingly are not – do not know how to do these online things. But now we have to bear with them, because we have to teach them the new way of doing things. Others are still stuck on the manual things. <Proc Officer H> there has been a lot of restructuring, and I think most of it is due to technology and stuff. So some people – like there is some jobs that you might find that they are not needed anymore, you see? <Proc Officer J> I can think of, if – yes, this one, it is hard. But I can say, if we can have the technological advancements, maybe we will end up with staff being retrenched, because some of the positions would be redundant. <Proc Officer A> It does a lot. You know, on the employee side, there are things that I am unable to do in the system, but it is only a certain person or certain people who are actually given access to that. But I am doing the same thing as them, but for me to maybe get a certain approval, I have to talk to this person, 'Can you do this for me?' you know? <Proc Officer N> and every time the IT system at the university changes, after all the changes are done, then they will call us and say, this is ... This is what is the new system, this is what they upgraded to, you have to work. There is no like – when our systems people will say, right, we're upgrading the system, give us your input, give us your requirements, there is nothing as such, they just say, right, this*

is a new system, go with it. As I said, the lack of training.

Staff reduction – the implementation of more technological advances would result in less demand for manual labour and maybe a reduction in the number of employees required. The result of this would be a decrease in employees' motivation to use more technology. Furthermore, there were delays caused by the fact that different phases of procurement needed permission from other departments. Therefore, there would be a delay in the procedure if individuals did not provide their approval at the appropriate time or if they were too busy. In addition, suppliers did not comprehend the need to continuously revise their contact information. Emails sent by procurement were often disregarded by suppliers, who instead chose to open them many days later.

Lack of training and consultation – At one institution, the employees lacked the appropriate training, which had a negative influence on their capacity to run the procurement system properly. In addition, whenever there was a modification made to the system, the department of information technology did not confer with the employees responsible for making the inputs. The fact that they had to then learn the new system while being in the dark about the kinds of modifications made the personnel feel overwhelmed. As a result, the employees depended on their own individual comprehension of the procurement system.

- Risk

There were many different risks connected to the use of technology systems. For example, online signing presents a risk for fraud since individuals may impersonate others to get permission. Given the significant social, economic, and environmental risks that South African national and large public entities are exposed to throughout the procurement process, a greater understanding of why risk management principles are disregarded is particularly crucial (Myeza, Nkhi, & Maroun, 2021: p. 736).

As per participants responses on risk: <Proc Manager 3> *So I think one of the challenges, also the bigger one probably with us signing everything online, it is the security that I can see where maybe one will fake a signature of approval.* <Proc Manager 3> *I can say it is most probably the hacking, as there were concerns we receiving threats of hackers trying to get onto our system or crashing the system.* <Proc Officer F> *Then the system as well, like the computerised system, you will find out that you have sent the quote to three – let us say to four suppliers, but when you receive quotations, now there are six.* <Officer H> *But now the biggest issue is this load shedding.* <Proc Officer B> *I can complain about if we have load shedding. We can have downtime, and if your battery, for example, is off, running down on your laptop, then we are kaput here, we cannot work, because we are so dependent on the technology, on the laptop.* <Proc Officer D> *I think for the country that we are in and what we are currently faced with at the moment with – in as much as technology is a good thing, but unfortunately it is greatly dependent on electricity, and with the blackouts that we sort of have, whenever there is load shedding, everything comes to a grinding halt, and there is not much that can be done, because there is no electricity.*

Procurement systems are susceptible to being hacked, which is particularly concerning given the rise in frequency of online cyberattacks on institutions. Sometimes technology may be used in a way that allows knowledge to be shared unethically, which can lead to processes getting tainted. This is known as *technological manipulation*. For instance, obtaining price estimates from suppliers that you had no intention of contacting in the first place. In addition, load shedding is beyond the control of the institution and presented a threat to the procurement procedures since it caused delays. It also posed a threat to the equipment itself, which included computers and servers.

- Linkages

There were important linkages that were lacking from the procurement systems. From a database point of view, there was an absence of a relationship between the systems and the providers. It was difficult to keep track of, get in touch with, and keep an eye on suppliers since there was not a thorough supplier database, as was discussed in other threads. In addition, uploading the documentation necessary to validate the provider was difficult. As a result, a database connection to suppliers has to be established so that suppliers may update their

information and submit any relevant documents for validation. The workload on the procurement side may be reduced as a result of this. In addition to this, there was a disconnect between the administration of contracts and the management of performance. This is significant because the performance of suppliers should be documented for auditing reasons (as will be outlined in later themes).

Participants expressed the following: *< Proc Manager 5> There should be an automatic mechanism or an email, where it goes directly through to the supplier. Now it is time-consuming, the procurement officer has to manually print it out, or it just prints it out itself, it cannot be stopped. <Proc Officer Q> if I compare us to other institutions using SAP, their system is so much better; there is integration, there is supplier relationship management. There are so many factors that that system has, compared to the university. Here at the university, we do not actually even have a supplier database. <Proc Officer A> I would not say it has a good influence, because – okay, since Covid, we – okay, from the outside now, since Covid we had a system where we send the link to the suppliers to register themselves on the database. But they are always on our door, meaning there is something wrong with it, you know? <Proc Manager 4> Like – let me look at the issue of contract management. I do not know if it is going to align to your question, but let us look at it practically. We have a detailed procurement process that we follow, from the end user submitting their request for a need, and procurement processing the whole process, up to issuing of an order. We have that process clearly documented and defined in our processes, and we have records of that process that we have kept in our records, whether it is kept electronically or in our files, but there is just no link with performance management and contract management. So there is just that.*

6.6.2 Theme 2: Capabilities, Innovation and Adaptability

Primary theme 2 concentrated on the capabilities, innovation and adaptability that were analysed from information present in the interviews by participants. This primary theme encompasses the key aspects of employee capabilities, innovation and adaptability within the procurement environment. Each subtheme is unpacked accordingly. There are three sub-themes to this primary theme that will be extensively discussed. The verbatim comments reviewed and presented are a clear indication that whilst staff were fairly adaptable, staff training is lacking in certain areas of concern. Staff expressed their key aspects of stronger

capabilities and where their strengths lay, however, at times it cannot be taken to the next level of competence. Little signs of procurement innovation were discussed and room for improvement was noted by participants. This theme is in line with the ‘*People*’ construct of the study. Table 5.5 displays the three primary sub-themes of the primary theme two (Capabilities) and the sub-themes of Primary sub-themes 1, 2 and 3.

This theme focused on the capabilities, innovation and adaptability that were raised and presented by participants of the interviews. This theme is in line with the ‘*People*’ construct of the study. Table 5.5, displays the three primary sub-themes of Primary theme 2 (Capabilities, Innovation and Adaptability of employees) and the sub-themes of Primary sub-themes 1, 2 and 3.

Table 6.5: Theme Two – Capabilities, Innovation and Adaptability

| Sub-Research Objective | Main Theme | Primary Sub-Theme | Sub-Themes | Study Construct |
|--|--|--|---|-----------------|
| <i>Identify and determine the systematic challenges experienced by key employees in terms of the current public procurement systems in the HEIs.</i> | THEME 2: Capabilities, Innovation and Adaptabilities of Employees | 1. Adaptability amidst Changing Work Environment | <ul style="list-style-type: none"> • Policy and Process Change • Training and Learning • Technology • Ethics • Circumstantial Change | PEOPLE |
| | | 2. Strongest Capabilities in Job Performance | <ul style="list-style-type: none"> • Work Ethic • People Skills • Skills and Learning • Leadership Skills • Integrity | PEOPLE |
| | | 3. Innovative Procurement Processes Utilised | <ul style="list-style-type: none"> • Validation • Technology • Planning • Regulations and Compliance | PEOPLE |

Source: Compiled by Researcher from the Information Analysis of Nvivo – 2022.

The second main theme is supported by three distinct primary sub-themes. Primary sub-themes 1, 2 and 3 have a total of five, five and four sub-themes, respectively. The findings of the investigation allowed for the identification of the key topic. The public procurement system and technology challenges are the two key twins of the wide fundamental sub-themes that make up the procurement challenges. The difficulties that were mentioned by each participant are listed in Table 5.5.

Table 6.6: Theme Two – as per Participant

| Theme 2 Capabilities, Innovation and Adaptability | P.O A | P.O B | P.O C | P.O D | P.O E | P.O F | P.O G | P.O H | P.O I | P.O J | P.O K | P.O L | P.O M | P.O N | P.O. O | P.O P | P.O Q | P.O R | M 1 | M 2 | M 3 | M 4 | M 5 | M 6 | M 7 |
|--|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Primary Sub-Theme 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sub-Themes | | | | | | | | | | | | | | | | | | | | | | | | | |
| • Policy and Process Change | X | X | | | X | | | X | | | | X | | | X | | | X | X | | | X | X | | |
| • Training and Learning | X | | X | | | | X | | | X | | | X | X | | | | | | | X | | | | |
| • Technology | | | | | | X | | | X | | X | | | | | | | | | X | | X | | | |
| • Ethics | | X | | | | | | | | | | | | | | | | X | X | | | | | | |
| • Circumstantial Change | | | | | | | | | | | | | | | | | | | | X | | X | X | | |
| Primary Sub-Theme 2 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sub-Themes | | | | | | | | | | | | | | | | | | | | | | | | | |
| • Work Ethic | X | X | X | | X | X | X | X | X | | | | | | | X | X | | X | | X | | X | | |
| • People Skills | | X | X | X | | | X | | | | X | X | | | X | | | | X | X | X | X | | | |
| • Skills and Learning | | | | | | X | | | X | X | | | | X | X | | | X | | X | X | | | | |
| • Leadership Skills | | | | | X | | | | | | | X | | | | | X | | | X | | | | X | X |
| • Integrity | | | X | | X | | | | | | X | X | | | | | | | X | X | | X | X | | |

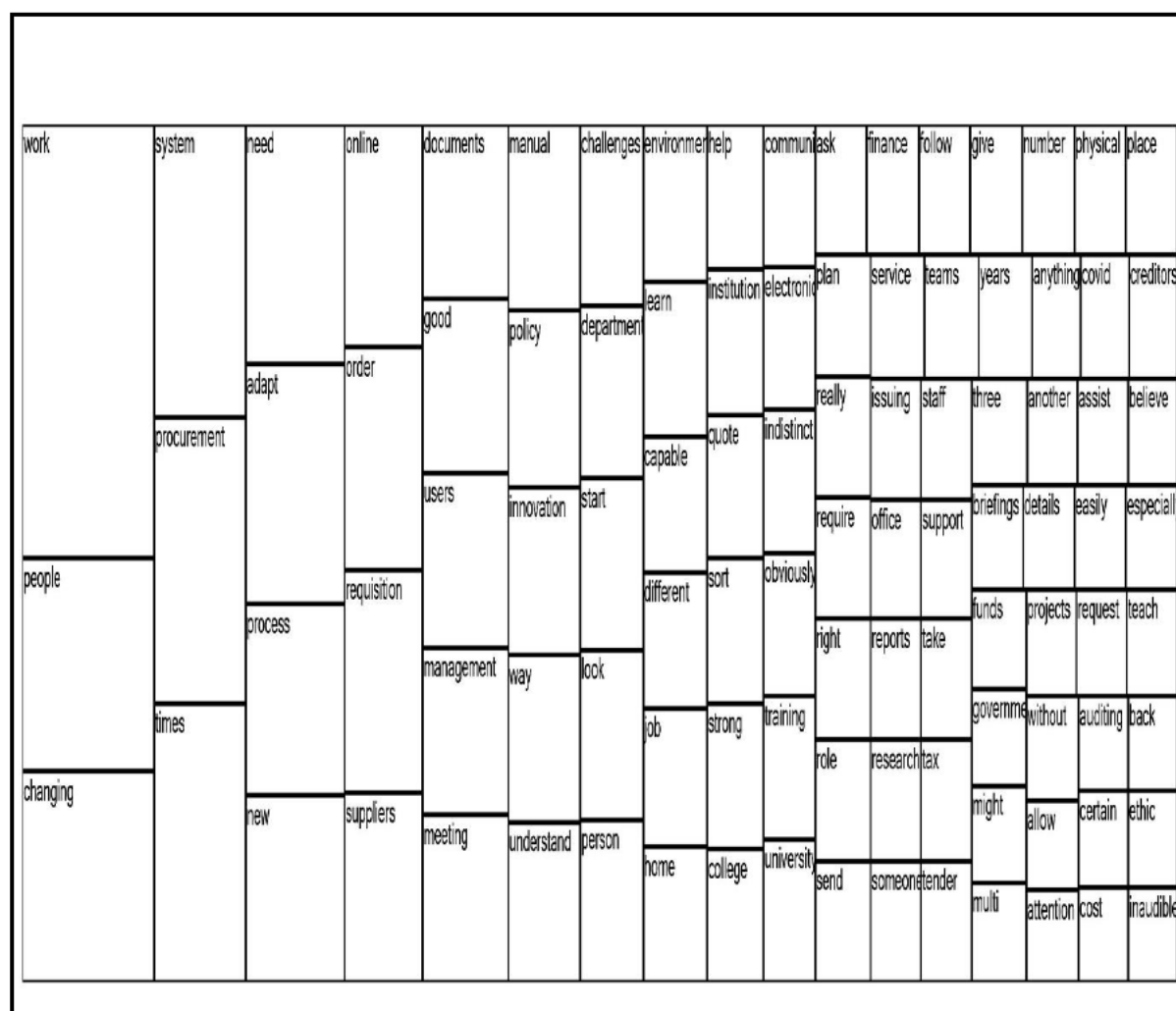
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|------------------------------|---|---|--|---|---|---|--|---|--|--|--|--|---|---|---|--|--|---|---|---|---|--|---|--|--|
| Primary Sub-Theme 3 | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Sub-Themes</i> | | | | | | | | | | | | | | | | | | | | | | | | | |
| • Validation | | | | | X | | | | | | | | | | X | | | | | X | | | X | | |
| • Technology | | X | | X | | X | | X | | | | | X | | X | | | | | | X | | | | |
| • Planning | X | | | | | | | | | | | | | | | | | X | | | | | | | |
| • Regulations and Compliance | | | | | | | | | | | | | | X | X | | | X | X | X | | | | | |

Source: Compiled by Researcher from the Information Analysis of Nvivo – 2022.

6.6.2.1 Primary Sub-Theme: Adaptability amidst Changing Work Environment

The adaptability of staff members in the face of shifting working conditions was investigated, and it was established that staff members were quite adaptable.

Figure 6.8: Tree Map of Capabilities, Innovation and Adaptability



Source: Compiled by Researcher from the Information Analysis of Nvivo – 2022.

6.6.2.1.1 Sub-Themes:

- Policy and Process Change

Employees needed to be adaptable in order to accommodate the changing policies and processes. Some of the participants have migrated to the newly implemented rules and regulations. People are required to adjust their behaviour to accommodate the new policies and regulations, since failure to do so may result in problems related to non-compliance. As a result, some of the participants came from quite different contexts and had to adjust to new ways of doing things in order to comply with the policies and laws that were in place at the time.

As per participant views on policy and process changes: <Proc Manager 4> so I think when I came in there was a lot of transition in terms of the processes as well. So, I think I came at the right time. <Proc Officer L> I would say I am very adaptive to a changing environment, because when I first started working here I was coming from a company that is fully into the PFMA policy and the Treasury regulations. <Proc Officer O> The second one was the one of the mentioned, the CIDB. I am not too sure whether you were not aware that they are supposed to advertise on the CIDB. So, I am the administrator, I facilitated it, then we managed to register with the CIDB, and they gave us access to register all our projects on the CIDB website, as well as to view the status of the service providers. <Proc Officer B> so if the policy changes, it means I must change. I cannot not change, because then I will not have a job. <Proc Officer R> I have been here now 20 years, so I am very adaptive. <Proc Officer A> I am very adaptive. <Proc Officer H> I am very adaptive, I am a flexible person. <Proc Officer O> Well, I can say with me, I was very adaptive when I joined here the reason was that I was coming from a government institution. Actually, I have worked in different government institutions. I also worked at the Auditor General, I am sure you know them, the auditors, those who are auditing the government. <Proc Officer E> I will tell you why. I started here in 2020 as a finance officer. From there, I have moved into a cashier role. From there I have moved into stores, and from there I have landed up in procurement, so I would say I am very adaptable to change, <Proc Manager 5> well, probably the biggest change that we had would be within the re-org, where we had procurement decentralised, and all that role and responsibility coming to the college.

In addition, there were leadership changes in the procurement area, which meant that employees needed to adjust swiftly and efficiently to the new environment. Furthermore, several of the participants had previous experience working in other departments before entering procurement. Because of this, they needed to be able to adjust to different departments. Some of them also had jobs outside of the institution and had to adjust to their new environment when they started at the university. There was also reorganising, restructuring, and reshuffling going on in some institutions, which indicates that the environment was always shifting at any one moment in time. This indicates that participants were required to adjust in the face of such change.

According to a study done by Motuba (2014) in one of the district municipalities in South Africa, the implementation of SCM and procurement in general was not at all satisfactory, and some municipalities struggled with issues related to a lack of skills and capacity in the execution and implementation of SCM. Additionally, it was noted that SCM and procurement laws were not being followed. In an attempt to promote efficiency and effectiveness in government supply chain management operations, the regulatory framework of the South African government has made sure that any key modifications and improvements in such practices are carefully maintained. To guarantee value for money, stricter restrictions have been implemented in the government procurement industry. The issue, however, still lies in getting employees in government supply chain management to embrace this change in how they conduct themselves and how they perceive government activities (Dorasamy & Fagbadebo, 2021: p. 90).

- Training and Learning

The transfer was made easier by the training and learning exercises. Transition was made easier with the help of training and workshops. For instance, employees have to adjust in order to make the move from manual to automated processes. Consequently, training was an important factor in the promotion of adaptation. Additionally, anytime there was a change, institutions held training for their employees.

As per participants views on training and learning: *<Proc Officer G> I am very much adaptive, because as I told you, like previously there was a manual thing, now it is online. <Proc Officer J> What I do, is we will be having the workshop with the finance administrators next month, whereby we are trying to be more in one line with them. So that is how I think I am adapting. <Proc Officer C> I prefer changing my working environment, is actually training my end users, because I do believe that people should be independent, you should be able to work independently. <Proc Officer M> I do not know, I think – I mean, I have been a couple of decades in this field, so I could – I mean, I could – we have always been multi-skilling and multi-tasking. <Proc Manager 3> With us, in our office we are working with researchers, as I was saying, where you find maybe like one researcher is doing like farming research, and then another one is doing science and innovation, and another one is doing something else, where you get those requests maybe like to go on like a background with them, but then we have to*

adapt because they are demanding and also they want our attention, so we have to constantly keep on learning new terms and new processes, and also new environments. <Proc Officer A> But now the most important thing is that before you get into the way of work, you need to be trained first. But unfortunately, in this institution, we learn on the job.

Because of their extensive knowledge and expertise, a few of the participants had several skills. As a result, they were capable of performing almost any function related to procurement. They had little trouble adjusting to the new circumstances. Some of the participants were involved in procurement activities for schools and departments operating in various sectors. This may encompass other fields as well, such as science and research. As a result, it was a process of ongoing learning, which also assisted them in adapting to new circumstances.

- Technology

Technology was another important factor that contributed to the beginning of change, which necessitated adaptability.

As per participants: <Proc Manager 2> and then when it comes to technology, the change of technology, we are – what I can say for our section we did try to adapt. But other departments – like for me, when I started in 2019, they were still using manual requisition, but there was a system in 2019. <Proc Officer I> I am very adaptive to change, because recently we have moved from a manual requisition, and we went online. I believe the end users have been struggling here and there. <Proc Officer K> and now we have – I have moved on to filing on Microsoft Teams lately, whereby the same – I can replicate the same hardcopy file that we will provide to the auditors when they come to audit. <Proc Officer F> I am the kind of person who is always willing to learn.

Some of the selected HEIs made the switch from manual to automated procurement because of the influence of technology. This was due to a variety of factors, including the need for efficiency, organisation, storage, and communication. Therefore, in order to remain in their responsibilities, staff members needed to embrace technology. Nevertheless, despite the necessity for adaptation, many employees embraced the shift to technology. Furthermore, because of conditions such as COVID-19, remote working through technology became

required, and employees had to adjust. Some employees learned by trial and error, particularly when it came to new technology. This aided them in understanding the new procurement system features on their own. This also demonstrated adaptability. Supply is changing as a result of the quick improvements in digital technology.

According to Rejeb, Sle, and Keogh (2018), supply chains are ready to change how the procurement function provides value. In order to cope with the continual growth of the procurement function in a global setting, new developing technologies may be crucial. Any firm that uses cutting-edge, digital technologies may improve transparency and lower risk while gaining a competitive advantage. The conventional procurement function has a reputation for being sluggish to advance. For instance, when investments lead to structural changes in business processes, there may be varied degrees of resistance to change and unwillingness to abandon the current methods. Additionally, there has to be greater distribution to promote technologies that facilitate procurement since there is still a lack of technology understanding. Employees should, therefore, be adaptable to the whole of the fourth industrial revolution and open to the possibilities presented by these disruptive advances (Bienhaus & Haddud, 2018: p. 968).

- Ethics

On the other hand, ethical concerns affected adaptation. Certain employees in the institution were able to adjust, but they did so without violating any regulations or procedures. Some employees' code of work ethics included the need that they be adaptable.

As this participant: *<Proc Officer R> so I have always been the only buyer in my college, which is one of the big colleges. Then you have got the smaller colleges, that have a fraction of the requests that we do, and they have two buyers, some have three buyers, because according to them they cannot work. So as an individual, it is how you work and what your work ethic is, that actually gets you through.*

The focus of a research by Mazibuko and Fourie (2017) is to draw attention to instances of unethical behaviour in the procurement sector. Unreliable, expensive, and risky, unethical procurement methods hurt society's economy and social fabric. Trade may suffer, investment may be discouraged, and government expenditure on public goods like infrastructure improvement and public works initiatives may be diverted. The emphasis on unethical procurement practices that are visible in the public sphere may add to the body of information needed to create systems to prevent unethical behaviour. According to this report, executives and professionals working in the procurement sector must never accept unethical procurement methods. A public institution should also make sure that contract management is implemented with no exceptions and that performance at every level of the procurement process is appropriately monitored. This study provided an analysis of the elements of unethical procurement practices, including non-competitive bids, employee bid awards, noncompliance with supply chain management laws, insufficient contract management, ineffective control systems, non-competitive bids, acceptance of fewer than three quotations, incorrect use of preferential point systems and thresholds, and irregular expenditure. By developing excellent governance and ethics mechanisms, the public sector may protect itself against the alleged immoral expression of procurement activities.

- Circumstantial Change

A high level of adaptability was also brought about as a result of the shift in circumstances. The Covid-19 pandemic was one of the most unexpected shifts in the global environment, which affected all nations and circumstances simultaneously. Because of this, the change came as a surprise, and the employees had to adjust to the new restrictions regarding lockdowns and remote working very immediately. In addition, unanticipated problems may develop in any setting, and in order to deal with them successfully, an individual has to be adaptable. There are instances when problems become more severe and need immediate action.

As per participants views expressed were: <Proc Manager 4> *I think I am adaptive. If we look at Covid, it has forced us to make changes in the way we work.* <Proc Manager 5> *Covid was also, I would say you had to adapt very quickly to that new work environment.* <Proc Manager 2> *only have to deal with issues that are escalated and can't be dealt with by my staff, so you have to kind of make sure that you are aware of all policies, and I think I am pretty adaptive. I*

think, I have – I'm a finance person, so I tend to have a very black and white view in terms of what's right and wrong, but certainly I understand, and I come from a service industry. Previously, at KPMG I was – you know, you obviously have to manage your relationships really carefully, so I think I have tried to build service delivery into my thinking, and I make sure that – even though the rule is the rule, I try to see how I can help the college to navigate those rules a little bit better,

6.6.2.2 Primary Sub-Theme Two: Strongest capabilities in Job Performance

The primary subtheme examined the strongest capabilities of respondents as staff in the procurement environment.

6.6.2.2.1 Sub-Themes:

- Work Ethic

Most participants regarded work ethic as the most important capability. The majority of participants said that they were thorough and paid close attention to detail. Participants ensured that work was completed on schedule and was according to the budget. Errors were also discovered and reported. Reports to their superiors were likewise completed quickly. In addition, participants confirmed that they were capable of working effectively under pressure and meeting deadlines successfully. Furthermore, work ethics were also heavily dependent on a person's attitude and personality.

As per participants views on work ethics: *<Proc Officer H> I will I pay attention to details a lot. As I was saying as well with attention to details; attention to details, it goes a long way, because – especially with quotations. There is a lot of things we come across with quotations. <Proc Officer I> I can say my strong point is that I want to work on something when it comes in, there and there. I do not want to wait for later to work on it. But what may hinder is that maybe the information is not clear, for me to source that particular product or service. <Proc Manager 5> I would say another capability, I do lots of reports and I would say those are done timeously. <Proc Officer P> So that you can process it on time, so they do not lose like just, deliveries. Because also stuff comes from overseas and you have to make sure that goods are*

here on time, that whatever can still go ahead as planned. <Proc Officer F> Okay, I am a strong person. I can say that I am a strong person, but very difficult to deal with sometimes. <Proc Manager 3> and then also working under pressure, normally our environment it is pressurised, where people must always be – ja, we are constantly under pressure, and then always try to make sure that we support optimum level into our researchers.

It was simpler for them to cope with challenges and difficulties if they had the appropriate attitude toward their work. The dedication of the employees was recognised, and several of the employees even put in additional hours. To ensure that everyone was treated equally and that they were informed of everything that was going on, transparency was a very important component of ethics. One of the participants felt inspired to work through challenges and find the appropriate answers. Time management was also a strong talent of work ethic, as was stated by two participants who always guaranteed that sufficient time was assigned to procurement tasks. These participants always made sure that adequate time was allocated to the tasks.

- People Skills

The capability to work well with other people was also rated quite highly. In the context of procurement, having strong communication and engagement skills was very necessary. One had to interact with staff members from inside the department, staff members from other departments, end users, management, and suppliers, amongst other people. As a result, having such capabilities was very useful, and a significant number of respondents confessed to having strong communication and engagement skills. Some employees viewed themselves in the role of educators, trainers, and assistants to other staff members, which helped to develop capacity and increase both the efficiency and effectiveness of the procurement procedures. For instance, if a member of the staff was having trouble with the procurement system, the responder would choose to assist that individual and instruct them properly. In addition, participants were asked to collaborate with others on a variety of skill levels. This may include academics and DVCs, and not all of them understood the vocabulary, policy, and procurement procedure involved. For this reason, it was necessary to be able to convey to them the concepts of procurement.

As per participants, the following responses were made: <Proc Officer R> for myself, I would say I work well under pressure. I can work under pressure. <Proc Officer E>. I have been working alone for a while, so I do not know what you would put that as, as a what, self-reliant? <Proc Manager 1> and I think having the right attitude with our department. Like I say, it can be very challenging, it can be irritating, frustrating, whatever you call, and you have got to - it is so important to have the right attitude, you know? <Proc Officer B> Let me start by saying that I think my personality is a strong suit for me. I am a calm personality. <Proc Officer F> I work overtime without being paid. I even work after hours at home, because of the pressure. <Proc Officer P> Okay, you are right about being trustworthy, hard-working. You have to be on top of things because there is always urgent stuff. <Proc Officer E> One of the strongest capabilities is not memory, obviously. Ja, so strongest, I would say is, ja, I am someone that works alone, has to meet deadlines, I have got a strong work ethic. <Proc Officer A> I am transparent and I treat everyone with fairness. <3 Proc Officer C> I believe in transparency, because at the end of the day the end users need to know why certain policies have to be adhered to because that also comes with auditing requirements. <Proc Officer H> And also problem-solving skills, I have a lot of that, because I am the kind of person who does not believe that you must...you must like give up easily.<Proc Officer H> also time management; I like to believe I am very good with my time because each morning I come and I plan my day for the day, like this is what I am going to do at this time to that time. Especially with the ones for time management, and – ja, with time management, the challenges that I might face is that since I am working with other people, since this is a chain, I find that sometimes my time just goes out the window, or the timetable that I have done for the day just goes out the window. <Proc Officer Q> Line management taking long to approve requests and this delays my work because I cannot proceed without their approval.

Patience and relationships – Due to the unpredictability of the surrounding environment, demonstrating patience was considered a capable trait. There were instances when it took longer for quotes to come, and there were moments when monies were not available in the cost centres. There were delays in both the approval process and the delivery process. Being patient was a need in this situation. The procurement department needed to establish and maintain relationships with a large number of parties participating in the process, therefore relationship building was an essential task. Being a skilled negotiator was also required for this.

- Skills and Learning

A significant category of talents labelled skills and learning was shaped by individual capabilities. These capabilities played a significant role. Some of the participants regarded themselves to be continual learners, which means that they were constantly open to acquiring new skills and knowledge. Others were proficient at doing many tasks at once, which enabled them to operate efficiently and fulfil a variety of functions. It was a significant advantage that a large number of employees had a deep understanding of procurement, as well as the norms and regulations that governed it; this was a critical factor in ensuring that the procurement process was carried out correctly from the beginning to the end. The additional experience of the participants enabled them to see any irregularities that may have been there.

As per participants views on skills and learning were indicated as follows: *<Proc Officer F> I am the kind of person who is always willing to learn. <Proc Manager 3> As I had made an example earlier, where one department will want this, and then the other one will want something totally different, so you must be flexible. <Proc Officer Q> Willingness to learn and adapting easily to changing environments sets me apart from other colleagues but not everyone likes change and that in itself can create challenges. <Proc Officer I> I can multi-task. <Proc Officer N> I worked – at that time we were multi-skilled. At the moment I can say I'm multi-skilled. <Proc Officer O> Yes, I can multi-task. <Proc Manager 2> I also think that whole ability to know your job puts you in a good position, especially when I am having to deal with DVCs and Deans, where I can also tell them, 'I am sorry, you are wrong, the policy...'. And I know the policies. I think that is one of the most important things for me, is that you have to be aware of the policies, because often it is – or the Acts or whatever it is, because you cannot always defend – especially with finance, you do not defend based what you feel, you defend based on what you can - you know. <Proc Officer J> Yes, so I understand the public procurement framework. I understand the accounting change, whereby if there is no funds, that order cannot be processed, unless it is overridden by the accountant or a finance manager. <Proc Officer N> I mean, the five strongest is that I have so much experience in procurement, I can do a tender for the highest value in this university, without any guidance. I mean, from start to finish, which I have sat on tender committees, I sat on a lot of committees. <Proc Officer J> and I also have vast experience in my current position. I can identify if there is a possibility of a corrupt activity that is happening, whereby one supplier is being used most of*

the time.

Of the views expressed by participants, according to Mouton, Louw, and Srtydom (2013), a certain proportion of council members rarely grasp their position, which is an example of how they frequently act inappropriately and negatively against the management of the institutions. In South Africa, there have been numerous instances where council members and university leadership have had some disagreements. If effective university governance is to be achieved, De la Rey (2015: p. 3) asserts that university council members must possess the necessary competence, knowledge, and financial acumen.

- Leadership Skills

Leading, logic and decision-making – Some of the participants took on the role of leaders in their respective departments, where they were responsible for inspiring employees and supporting them in resolving problems. Others admitted that they had found themselves applying reasoning to the rules so that they might exercise discretion in unusual procurement situations. In addition to this, whenever judgements were to be made, they were able to do so promptly and efficiently.

As per participants: *<Proc Manager 1> I think when it comes to leadership, I am capable to lead and learn, because before, whatever, even my subordinate or staff that are reporting to me, I knew what they are doing, and then I know their challenges. <Proc Officer Q> I am good at motivating others and ensuring that tasks are completed promptly. <Proc Manager 6> I am not scared to make a decision, I am capable of – I am not scared to make a decision. The issue now is how strong is my decision, because of my position? <Proc Officer D> I also apply logic in the policies that we read or that we abide by. <Proc Officer L> and I always make sure I get value for money, so whenever I am processing a requisition, even if it is one quote, I do go to the system to Google, to do a market research.*

Expediting and financial savvy – Some of the participants took on the role of leaders in their respective departments, where they were responsible for inspiring employees and supporting them in resolving problems. Some of the participants admitted that they had found themselves applying reasoning to the rules so that they might exercise discretion in unusual procurement situations. In addition to this, whenever judgements were to be made, they were able to do so promptly and efficiently.

- Integrity

Integrity was seen as an important ethical capability influenced by participants.

As per participants: *<Proc Manager 4> Honesty, fairness, transparency. When interacting with suppliers and the end user, those are very key. <Proc Officer K> and you will find there are other people who will try to shake your ethics and test, you know, and want to get their way around the process and - so you have to be strong and have a back bone when it comes to those instances. <Proc Officer C> Accountability. You must be able to be accountable to your end users. <Proc Officer E> yes, it is very important. You see, in government there is a lot of misspending, you would need rules to minimise that. But even in saying having those rules, without the correct leadership it still would get misused, so ja.*

According to Shava and Mazenda (2021, p. 340), the management of public procurement in South Africa requires ethical leaders to promote integrity, accountability, and openness in the performance of public obligations. To improve service delivery in a state that is undergoing development, it is now essential to demonstrate that one complies with the ethical norms and legislative regulations that regulate the operation of public institutions.

As per participants: *<Proc Officer L> And another thing, when there is irregular expenditures, we always try to see, okay, what did they do to make them be irregular, and then once we have identified that, we would check where in the process, or how much is there understanding of the procurement process, and then from there I am able to help them, to say in future, in order to avoid what has happened now, these are the following steps that we need to follow. <Proc Manager 1> especially I come from an audit background show, so prior to joining the university, I spent about 5 years on an audit background, so one is of the related compliance*

frameworks. <Proc Manager 2> So I think that is actually one of my strongest ... and I have actually instilled that kind of thinking into a number of my colleagues in the college, so we are very aware of the fact that this is public money, we need to be responsible and we need to ensure that we manage the risk carefully.

Accountability and ethics – Strong ethics are one of the characteristics that are stated, and they are shown by someone who is responsible, honest, fair, and transparent. In order to do this, it was necessary to maintain open and honest communication with the workforce, the suppliers, and the stakeholders. In addition to this, it required honesty and responsibility in terms of expenditure while preventing the inappropriate use of financial resources. In order to prevent problems with corruption and fraud, there must be compliance with the policies, regulations, and procedures that are in place, and some of the participants really did enforce compliance. One of the participants had an extensive history in accounting and auditing, as well as good competencies in these areas, and they always made sure to operate within the essential frameworks for accountability.

Integrity in the context of public procurement implies that procurement procedures are transparent and promote fair and equal treatment for bidders. Furthermore, when poor performance is identified, especially when it concerns conduct that violates minimum standards, it should be addressed as a priority in order to maintain the integrity of the public procurement process (CIPS, 2013). According to OECD (2015), government institutions ought to develop Integrity pacts with business partners. An Integrity pact is essentially an agreement between a government agency that is offering a contract and the companies that are bidding for it that both parties will refrain from engaging in bribery, collusion, and other forms of corrupt practices for the duration of the contract. OECD recommends that government institutions develop integrity pacts with business partners. Discrimination of any kind makes people less likely to participate in public procurement and undermines any attempts to maximise value for money via open competition (Public Procurement and Disposal of Assets Authority, 2022).

Primary Sub-Theme 3: Innovative Procurement Processes utilised

This primary sub-theme provides an overview of the innovative nature of the procurement process. The findings, on the other hand, suggest that there was very limited space for comprehensive innovation because of the need to comply with rules.

- Validation

When it came to the validation of procurement, a few of the participants attempted to be inventive.

As per participant, views discussed on validation are as follows: <HEI 2 Proc Manager 5> Globeflight, you know, anybody could actually just call Globeflight back then and say that they wanted to send - courier something. So we put in place a system where the school manager had to sign, there was a special form that they had to complete and Globeflight wasn't allowed to collect any parcel without the school manager's approval. So, it was – there were lots of checks and balances. <Proc Officer E> The only thing I can think of that is innovative, we have got checklists that we need to comply by. <HEI 2 Proc Manager 2> So I did put a process in place, where we reconcile our creditors, which you would think is an obvious thing, but like I said, having a database of thousands of creditors is problematic, and there is really no – the nature of the industry or the nature of universities, that we would, like I said, dabble in every industry. So we would need, you know – it is ridiculous when you think of every single supplier that we would need to accommodate. <Proc Officer O> I also developed different formats, correspondent formats, like your regret letters, drafting of the regret letter, to say how it is supposed – which information is supposed to be there on the regret letter.

Approval and checklists – At one of the colleges, the delivery could not be completed until the school management had signed it and given his or her approval. Checklists were also developed to guarantee that each request had satisfied the essential standards, including a budget and three quotations from reputable suppliers. At one institution, creditors were reconciled. Due to the database's size, this helped to guarantee that all payments were made on time and that all suppliers were identified.

- Technology

The key innovation was technology, which is addressed in its own theme (Technology and procurement).

As per participants: *<Proc Manager 4> So that is what we are using. We are changing to SAP; finance, HR and IT, we are going with SAP, and since we have been – we have had a few meetings already with the project management, like I say, with the new system that is going to be implemented. <Proc Officer B> Look, currently, our ERP system is being changed, not sure when. <Proc Officer D> well, we are in the process of getting a system, it will be SAP, to be able to procure goods from. <Proc Officer H> But you find that with this innovation of doing a requisition online, with the restriction that has been put there, you find that maybe a requester in a certain office is supposed to be doing a requisition online, and then they are not linked to that account or that cost centre. <Proc Manager 3> Now with Covid, and then we were in like or the lockdown and shutdown, then the only change was that now most of our staff is electronic, even with tenders. We request the bidders to submit their proposals online, as in - then I think that's also saving paper and space. <Proc Manager 4> For instance, were done manually in procurement, like the submission of tender documents, it was done manually. The collection of tender documents, it was done manually. And we have since had to adjust and start applying - doing things electronically. <Proc Officer F> like when you were talking about the paperless system, previously – so now we are using the paperless system, I can that. That is the big innovation on our side. <Proc Officer C> because we want to reduce paperwork. So basically, the system would allow end users, whereby instead of using the manual process of requisitions. <Proc Manager 4> Yes, that is just the beginning. We do not really have a system in place that is doing everything electronically. <Proc Officer O> Yes. In the past we used to – when the committee is doing the adjudication, we used to have the physical meeting.*

SAP and ERP – Some institutions were using versions SAP and ERP in order to assure a more integrated procurement system that was connected to the many stakeholder departments. These were powerful systems that were purpose-built and efficient. However, a few participants were unsure about when this introduction of these systems will fully take place. Furthermore, the utilisation of contemporary online technology increased the flexibility and speed of procurement. It included reducing handwritten requisitions and interacting with suppliers

through electronic documentation. Going paperless was a major invention related to increased internet and technological usage that saves space, time, and the environment. Less paperwork meant less tedious labour as well. Consequently, the concept of working remotely was considered revolutionary and was once again made feasible by technological advancements. Meetings and other engagements might also be conducted virtually, which would save both time and money and reduce the need for more physical venue space.

- Planning

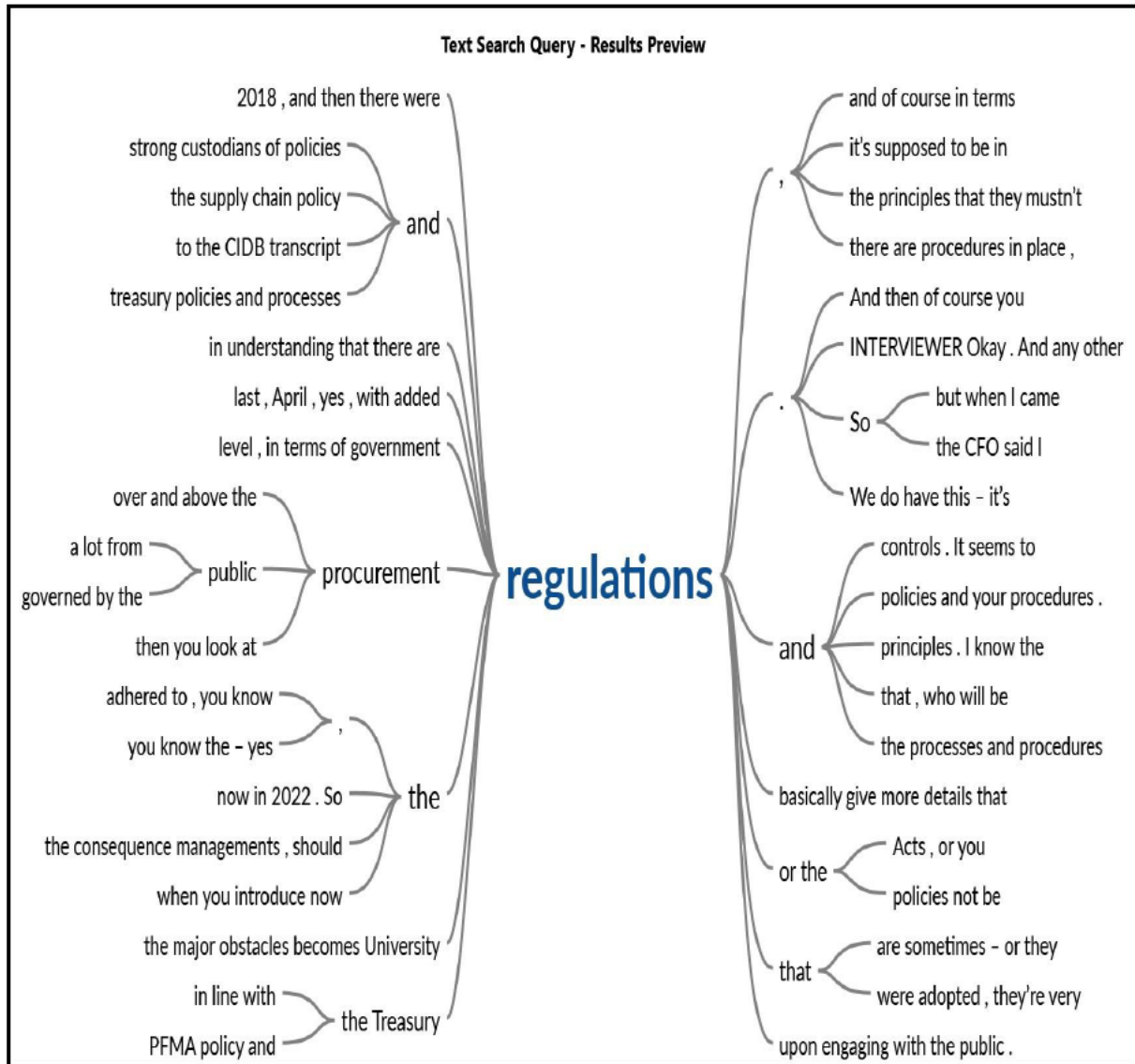
Taking the initiative to properly plan was a proactive way to be innovative. Planning ahead for finances allowed for the creation of budgets and demonstrated the potential for cost reduction that resulted from doing so. For instance, some things may be procured depending on their volume and the savings associated with it.

As per participants, the following was explained on planning: *<Proc Manager 1> Issues surrounding funding. And if I say the issues surrounding funding, is that - I mean, I am in Semester 2, there is things that I might want to procure now for next year first semester, but I cannot because I do not have the necessary pre-budget for it. <Proc Officer A> What has actually been innovative here now, is that we have urged the department to sit down with us and let us know of their procurement plan.*

However, there were occasions when this was made more difficult by a restricted budget. Notably, an overall procurement plan that was produced via collaboration with relevant departments acted as a proactive and creative strategy to foresee the sorts of procurement that may be required in advance. This was accomplished through the use of an overall procurement plan. This enables products to be acquired within the allocated timeframes, while also allowing for the appropriate money and resources to be allocated.

- Regulations and Compliance

Figure 6.9: Word Tree of Regulations and Compliance within Capabilities, Innovation and Adaptability



Source: Compiled by Researcher from the Information Analysis of Nvivo – 2022.

Even when it came to concerns with rules and compliance, some participants sought to be creative.

As per participants: <Proc Manager 2> *And you know, when people sort of just buy things without checking, and you are thinking, 'Okay, what do I do?' And it has been, like I said, historically.* <Proc Officer O> *Because I think I forgot to mention that another risk with the manual submission is that, you know, when people are - some people when they sit in a committee, they just do anything, they just agree with whatever you will be saying, only to find out that there are mistakes with the manual submission especially.* <Proc Manager 1> *One of the major obstacles becomes University regulations and policies and your procedures. It is like right now, through innovation, you can go and engage service providers, in terms of their service offerings. You can go and engage them to negotiate stuff and so forth, but you are going to come back and someone is going to say, but policy does not allow that.* <Proc Manager 2> *I am not sure that I have a lot of innovation around procurement.* <Proc Officer P> *There's not like too much that we can do or even change. You are just like tweaking things just to make it a little bit easier. But overall the procedures and stuff are very – is the same.*

Ensuring compliance – By establishing multiple checks on submissions, compliance was guaranteed. Nothing could be approved until all conditions were satisfied. Additionally, the online system permitted status checks on compliance concerns and would not advance to the next stage without validating. By establishing multiple checks on submissions, compliance was guaranteed. Nothing could be approved until all conditions were satisfied. Additionally, the online system permitted status checks on compliance concerns and would not advance to the next stage without validating.

6.6.3 Theme 3: Process and Understanding

This primary theme examined the understanding of respondents as well as the relevant current procurement processes at the institutions. This main subtheme investigated respondents' comprehension as well as pertinent ongoing institutional procurement processes. The comprehension of the procurement system and its understanding was the focus of primary topic three. Information from participant interviews was used to analyse this. The fundamental elements of the procurement process and supplier relationship management are looked at in this main theme. Accordingly, each subtheme is unpacked. This main theme has three sub-themes, all of which will be covered in depth. The analysed and given verbatim remarks show unequivocally the key areas of concern. This topic is consistent with the study's "Process"

construct. The three basic sub-themes of primary theme three, as well as the sub-themes of Primary sub-themes 1 and 2, are shown in Figure 5.7.

This theme focused on the public procurement process and understanding that were raised and presented by participants of the interviews. It is in line with the ‘*Process*’ construct of the study. Table 5.7, displays the three primary sub-themes of Primary theme 3 (Public Procurement Process and Understanding) and the sub-themes to Primary sub-themes 1, 2 and 3.

Table 6.7: Theme Three – Public Procurement Process and Understanding

| Sub-Research Objective | Main Theme | Primary Sub-Theme | Sub-Themes | Study Construct |
|---|---|---|--|-----------------|
| <i>Evaluate public procurement policies and principles of the HEIs in compliance with the operations of agility, flexibility and responsiveness in their daily tasks.</i> | THEME 3: Public Procurement Processes and Understanding | 1. Understanding of the Public Procurement Process | <ul style="list-style-type: none"> • Sourcing of goods within public domain • Holistic process of acquiring goods and services • Public Funds • Compliance • Service Delivery • Supply chain process | PROCESS |
| | | 2. Procurement Process at Institutions | <ul style="list-style-type: none"> • Procurement Process • Centralised versus Decentralised | |
| | | 3. Current Supplier Relationship Management Process | <ul style="list-style-type: none"> • Absence of relationship • Physical supplier relationship • Verification • Feedback | |

Source: Author’s Compilation

The first main theme is supported by three distinct primary sub-themes. The Primary sub-themes 1, 2 and 3 have a total of six, two and four sub-themes, respectively. The findings of the investigation allowed for the identification of the key topic. The difficulties that were mentioned by each participant are listed in Table 5.8.

Table 6.8: Theme Three – as per Participant

| Theme 3 PP Process and Understanding | P.O A | P.O B | P.O C | P.O D | P.O E | P.O F | P.O G | P.O H | P.O I | P.O J | P.O K | P.O L | P.O M | P.O N | P.O. O | P.O P | P.O Q | P.O R | M 1 | M 2 | M 3 | M 4 | M 5 | M 6 | M 7 |
|---|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Primary Sub-Theme 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sub-Themes | | | | | | | | | | | | | | | | | | | | | | | | | |
| • Sourcing of goods within public domain | | | | | | | | | | X | | X | X | | X | | | | X | | | | | | |
| • Holistic process of acquiring goods and services | X | | | | | X | X | X | X | X | | | | | | | | | | | | | | | |
| • Public Funds | | | X | | | | | | | | X | | | | | | | | | X | | | X | | |
| • Compliance | | X | | | | | | | | | | | | | | | | | | | | X | X | X | |
| • Service Delivery | | | | | | | | | | | | | | | | | X | | X | | | | | | |
| • Supply chain process | | | | | | | X | | | | | | | | | | | | | | | | | | |
| Primary Sub-Theme 2 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sub-Themes | | | | | | | | | | | | | | | | | | | | | | | | | |
| • Procurement Process | | X | X | X | X | X | X | X | X | X | X | X | X | | X | X | X | X | X | X | X | X | X | X | |
| • Centralised versus Decentralised | X | X | | X | X | | X | X | | X | X | X | X | X | X | X | | X | X | X | X | X | X | | |

As per participant understandings: *<Proc Manager I> the term public procurement is a set of rules and guidelines and methods that guide the sourcing of goods and services within a public institution or a public linked institution. <Proc Officer J> for me, what I can say is that public procurement is whereby you procure goods and services for the public institution like this institution. <Proc Officer L> I understand that it is when you procuring, you are observing all the public policies, to make sure that everything that you do is transparent, it covers all the public needs. <Proc Officer M> A good one, hey. Public procurement is you are procuring goods and services to be used or utilised or consumed by the public institutions that are owned by government. <Proc Officer O> Public procurement, it is the buying of goods and services for the – not for the public per se, for government.*

- Holistic process of acquiring goods and services

Similarly, some participants thought that it was the unified method of acquiring products and services according to a set of fundamental guidelines and policies.

As per participants: *<Proc Officer F> Public procurement, as far as I know, it is when you...when you require something, and then you request a quotation, like an open tender, something like that, whereby everyone from the outside can see that there is a requisition or an RFQ that needs to be quoted on. <Proc Officer G> so it is a general – it starts from the buying of goods and service, delivering, and then there is custodian, and then there is payment, and then we do the orders here, and then we go back to payment. So it is a circle actually. <Proc Officer H> in simple terms, it is just purchasing of goods and services, ja. <Proc Officer I> Public procurement, it is when we buy – I mean, we procure goods and services for the institution. <Proc Officer J> Yeah, that is what I understand. And we will have to follow all the procedures, the policies that are in place before we can even start to procure or anything under the name of this institution. <Proc Officer A> when we say public procurement, that means we are giving everybody a chance to provide their goods and their services to us as the higher education institution.*

- Public Funds

The primary distinction between public and private procurement was that public procurement required the use of and expenditure of public money, while private procurement was limited to the use of and expenditure of private monies.

As per participants' of the study: *<Proc Manager 2> Well, any money that requires procurement that is funded from the public, for me is public procurement. <Proc Manager 5> Public means just what it says. <Proc Officer K> Public procurement is an open procurement, so you use public funds to procure, and you are governed by the public procurement regulations upon engaging with the public. <Proc Officer C> For me, it would be basically – public procurement, I would normally associate it mostly with spending funds, and government funds.*

- Compliance

Nevertheless, regardless of the circumstances, compliance must be seen as obligatory even in the context of public procurement. This includes complying with all applicable policies and laws.

As per participants: *<Proc Manager> Then we are supposed to comply with some other Act in government when it comes to that, like BEE, we comply with it, and then some SARS document that we require. <Proc Manager 4> Public procurement is basically buying, following the policies and legislations that govern the procurement processes in government. That is what I understand about it. <Proc Manager 6> so my understanding would be that, you know, obviously to perform the procurement function that is the procurement of goods and services. <Proc Officer B> I would think it is procurement for the public sector, the SOEs. And I think now that here, mostly we are following the PFMA, not completely, but mostly, we are in line with that now, I would think, public procurement.*

- Service Delivery

Two of the participants brought up an important issue when they said that public procurement was deeply linked to service delivery.

As per 2 participants: *<Proc Manager I> that means we are not procuring stuff for any – to do it for profit, but it is for service delivery. <Proc Officer Q> And I always, on a daily basis, ensure that whenever I am doing procurement, I ensure that it is in line with section 217 of our Constitution, which states these various factors. And then I would also say that it includes other activities that basically support the service delivery of different government entities.*

- Supply Chain Process

As it was in the public sector, another participant believed that it was a very large-scale supply chain process.

As per *<Proc Officer G> as you know the higher institution is a public procurement, where we buy goods and also resource out services from the end user, which are the originators. Then it comes to SCM for – it is a chain that is why it's called supply chain, up until it goes back to the payment section, where there is actual payment of that invoice or service. I think that is the end part.*

6.6.3.2 Primary Sub-Theme 2: Procurement Process at Institutions

6.6.3.2.1 Sub-Themes:

- Procurement Process

It was discovered that the procurement process itself was fairly intricate and influenced by a wide range of circumstances. Advancing the procurement process was brought upon by various factors which will be discussed in the thesis' findings. Notably, the end user would determine that they need a certain product or service, and their department would then submit a request for the item. The request may be processed via the system, by hand, or through a hybrid manner

in which parts of the operations are completed online while others are completed by hand. It was entirely predicated on the capabilities of the technology in question. At times delays occur, which slows down the public procurement process from flowing. There may be a problem with the procurement process if there is little oversight since this might lead to the staff acting in any way they choose. Due to the difficulties, it will not be possible to find solutions to these problems in a timely and efficient way (Procurement Guidance, 2018: p. 17).

Notably, the appropriate buyers will check and double-check the request as well as the papers that support it, and they will also make certain that the order is recorded accurately. They will also consult the policy to make certain that the appropriate procedures are being followed. Many different regulations regulated the public procurement process, and these policies had to be enforced whenever procurement was being done to guarantee that procurement was conducted honestly and ethically. This component of the Policy will get extensive coverage in the form of its own theme. In addition to the regulations, there were several public actions that needed to be complied with.

The suppliers were the most important players in the process of acquiring the products and services via sourcing and procurement. The first thing that needed to be done to complete this procedure was to locate the supplier's record in the institution's database. It would have been perfect if all relevant and regular suppliers were included in the database. Following that, quotations from them would be sought. Nevertheless, it is very uncommon for certain departments or end-users to have favourite suppliers. These preferences may be based on a variety of criteria, including price, quality, service, or specialisation. The Office of the Chief Procurement Officer has advanced thanks to the use of technology to modernise SCM in government. The system's goals are to boost transparency and improve access to public-sector procurement opportunities. It lowers the cost of doing business for prospective suppliers while saving money for the government's printing budget (National Treasury, 2018: p. 64). Suppliers' raising of prices in response to an increase in demand is one of the difficulties brought on by erratic supply patterns (Ngwenya, 2015: p. 23). Communication throughout the procurement procedures would be improved with effective supplier engagement (Ilkka, Khuram & Elina, 2015: p. 10).

Participants expressed the following understanding on the public procurement processes at the HEIs: <Proc Manager 1> *The end user will identify the need, and then will come to procurement the forwarding of requisition.* <Proc Officer F> *Okay. Our process starts with the end user. When the end user needs something, they go to the system and create a requisition.* <Proc Officer H> *Okay, it starts from a request from the end user. So they put a requisition online to – with the description of what is needed, what is their requirement at the time.* <Proc Officer I> *Okay. It is when the end use will find out maybe that they need a certain product or services to be rendered, and then they submit their requisition, their request actually, as in a requisition form to us.* <Proc Manager 3> *the procurement process with our institution, it starts from the department or the users.* <Proc Officer K> *You receive a request, or it comes out of a need from that particular department, and our committees, depending on the threshold or the value of the need.* <Proc Manager 2> *and then previously it was manual requisitions, now it is on iEnabler system, where they will just information on the system, and then the buyer can access on this side.* <Proc Officer M> *The buyer will look at the document, verify everything, that is your cost centre, your quotation is uploaded. If you need more than one quotation, checking that the quotation itself is correct, including VAT, and that items are captured correctly.* <Proc Officer Q> *So the user department will put a request on IT, where they will basically ask us for assistance to procure whatever is needed, maybe pens, books, paper, stuff like that. So the request comes through onto IT, it comes through to me.* <Proc Officer R> *The other thing is that all of the buyers, or most of the buyers interpret the procurement policy differently, and apply it differently. So where I would say an item is on Purco contract, you have to buy it from that particular supplier, other colleges will buy it from a supplier that is not on Purco contract.* <Proc Officer F> *Okay. And then because we are we are governed by the – we have our supply chain policy, so anything that we do, it must be within our policy.* <Proc Manager 4> *I will try and cover everything. We are basically guided by policy, we have delegations that guide us. We have different types of procurement processes, based on the threshold.* <Proc Officer K> *From the procurement side, the procurement officer will ensure that everything, from going out to market, to closing off of that tender, to sitting down and evaluating, is based on the policy, it is within the policy that has been set as a process, and to ensure that those processes are followed.* <Proc Officer R> *But other colleges do not have that. We have a catering policy, we have a chair guideline policy document. Because all of these were implemented to try and standardise the rates that we pay.* <Proc

Manager 1> Okay, firstly there is issues surrounding your – obviously there is your Public Finance Management Act, and then there is your municipal Finance Management Act. But in this institution, we do not directly or specifically use those frameworks, but the institution has developed its own framework, meaning there is a university procurement policy.

Since this feature was a deciding factor in the actual procurement of the products and services, the process of obtaining quotations evolved into the procedure that became the most important. As a result, it was influenced by a wide variety of underlying ideas. The sourcing and evaluation of quotes entailed various factors. The actual sums that were indicated in the quotations served as the basis for determining whether or not more than one quote was required. While the criteria varied from institution to institution, the general rule was that further quotations were required if the total cost was more than a certain level. Numerous quotations were required when the quantities exceeded a certain threshold. This was true for all of the institutions studied. Formal quotations were necessary at certain of the institutions when the sums were quite high. While most institutions focused their price on the lowest option, others also considered qualitative factors. As a result, it is not only about the lowest price. Accordingly, quotes were scored based on a variety of criteria, including price, quality, and BEE score. The procurement division also performs a crucial duty by reviewing each bid and guaranteeing that the thresholds and suppliers were chosen following the correct procedures.

Additionally, the budget officers are responsible for ensuring that the things being quoted for are up to date, and that there is neither anything missing nor anything being quoted for that is extra. A deviation process must be followed if the end-user already has a preferred supplier or has already acquired goods and services due to emergency circumstances. This means that if the end-user has a favourite supplier or has already purchased goods and services. This will require extensive backing and documentation, including explanations of the reasoning for the decision and the justification for making it.

The tender process was sighted by participants as part of the evaluation. If the amount of the quotation is significantly higher than the customary criteria and reaches levels that are higher than those, then a tender process needs to be used. This is in and of itself a labour-intensive operation. When the amounts involved were above the typical or customary threshold, a bid process was initiated. Such sums varied from institution to institution, but once they reached

the R500-000 level, the majority of the institutions appeared to implement a procurement process known as a tender. It was necessary to speed up the process of relevant advertising in order to enable respective suppliers to view the advertisement and submit bids for the tender. This also lent support to an impartial procedure. Advertisements were placed on relevant platforms across both online and traditional media, such as newspapers and websites. In some cases, at particular institutions, a closed tender was conducted when the end-user had a particular need for a certain kind of provider, typically based on specialised requirements. This was done when the end-user had a specific requirement. The process of selecting a supplier and ensuring that all ethical procedures have been followed appropriately is presided over by a committee that is responsible for the procurement of goods and services. In most contexts, this kind of group is known as a Multi-Functional Steering Team.

All of the criteria need to be satisfied, and the tender documents, application, and records that were received from the supplier need to be reviewed. There is also a reporting procedure that needs to be followed to, which comprises the choice and selection of the suitable service provider, in addition to the rationale for those who did not qualify. This process also needs to be adhered to. The procedure is also intended to be open and transparent, with the provider being allowed to solicit feedback and ask pertinent questions at any point during the process. Additionally, the institution has an obligation to have an open and honest dialogue with the supplier during the entire process. After the procedure has been completed, the official notification of the awarding of the tender to the supplier must take place. There is also a mechanism for people who, despite their best efforts, may not be successful.

As per participants: <Proc Officer F> *But if it is less than R100 000, the quotation will come straight to the buyer. Then after that you send a request, you get the quotation; if it is less than R100 000, then you process the quotation. If it is more than R100 000, that means, the suppliers, they will send it to our electronic tender box. Then as a procurement officer, you send an email to your manager, and you quote the requisition number, can you please retrieve the quotation for this specific university number of requisition number, then he is going to send it to you.* <Proc Officer G> *for example, if the quotation is less than R10 000, only the minimum – the minimum quote, it can be a one quotation, if maybe the item is less than R10 000.* <Proc Officer I> *After they have submitted their requisition to us, and then I source quotations from the suppliers.* <Proc Officer O> *Then you have the quotation process, you*

know, the quotation one, like R15 000, R50 000, R500 000, they all follow the quotation process. In that process it is the same, you receive a bid request from the end user, together with the specification. <Proc Officer F> The minimum, three quotations. But it cannot be more than that. <Proc Officer G> If the item quoted is above R10 000, then it goes to another threshold, where you have to source three quotations and more from different suppliers, to check their prices. This is why I am saying it is very competitive. <Proc Manager 3> Then it will follow the process, like our – in terms of the - we have got like the limits, where how many quotations fall – up to R10 000 it is one quotation, up to R100 000 it is two quotes, and then up to R750 000 it's three quotes, and then mini-tender and open tender. <Proc Manager 4> A quotation process, you would have a process where you can acquire one quotation based on the threshold. <Proc Officer J> whereby if you are procuring goods or services of less than 15000, only one quotation is required. If it is more than 15 000/200 000, only two quotations. That must be always adhered to. <Proc Officer L> That is the only, for one quote, and then even if it is more than R15 000, but less than R100 000, it follows the processes of two quotations. And then in that process also, the user is the one that goes to engage with the suppliers, and then he will request the quotations, and then put them on the system. <Proc Officer G> And then from there – and then between R10 000 to R100 000 it goes to another. Then from there, there is a third one, it is where it is R100 000 and above, to R500 000. We call them formal quotations. <Proc Manager> and then if the quotes come back, we check – first we check for the minimum cost, the cheapest one, and then after that, we check the quality of the service. <Proc Officer H> Then from sourcing quotations - with our policy – I know that in other places orders are not placed on the cheapest, but they are based on what meets the requirement. But with us here, our orders are based on the lowest price. <Proc Officer F> Then after that you do an evaluation report, where you score your quotations. And then you score them, the lowest quote is automatically selected. So it is me as a procurement officer, it is my manager and the end user, we must sign to accept the quotations, before we process them on our system to generate the purchase order. <Proc Manager> procurements above R30 000 - just one aspect, for all procurement above R30 000 we complete what you call – well, a BEE scorecard, where we do a BEE calculation, and generally then we will award an order in terms of the scorecard, you know, companies that are most competitive. So it is not like, yes, while we procure mostly the price – we normally say cheapest, but the priority is given to suppliers that are most competitive. <Proc Officer F> and then the requisition goes to procurement, and then the procurement officer will then select suppliers that they are going

to send quotations to. Then they are going to send the request to quote – yes, going to send the request to quote and indicate the closing date for quotations. <Proc Officer P> basically we have administrators, and they would get the quotes from their users and they will put it on the system, and we will check and verify quotes, and also get other quotes, if necessary. <Proc Officer Q> So with this instance, with stationary, right, so the user department puts the request on the system. I go in, I check that they have one quotation, if it is below R15 000 or two if it is above R15 000, check that the minimum number of quotations is there. Then I do my checks on the quotation, to make sure that it is valid, the company's on the system, you know, all those specific checks. In terms of pricing, whether it is market-related pricing. And then I process on IT system. <Proc Officer D> The budget officer would then send it through to procurement, to myself. I would then have a look at it, confirm that the quotations are still valid, confirm that they are quoting like for like, and that their request was clear and there was not any sort of overlap or someone quoted for something extra, or someone quoted for something less, and just to ensure that we are comparing apples with apples. <Proc Officer M> Sometimes you need a motivation to say, I need to go to that supplier, because of X, Y, Z, for example, specification or immediate delivery. <Proc Officer O> And we also have another one, which is the deviation, when we want to deviate from the procurement process, when you want – for example, if the policy says maybe it's an open tender, for example. I had this one for the graduation photographic services. It is an open tender, so the open tender is supposed to observe a minimum of 16 working days on the advert. So now maybe it is something that we need from next week, so it will not be possible for us to observe that 16 working days, because the service provider is supposed to be on site next week. So that means we are going to deviate from the procurement process, to say we are not going to advertise because of time, we do not have enough time to advertise for 16 days, we do not have enough time to receive 20 bids, because when you are open tender, it will attract everyone in South Africa, so we will not have time to adjudicate, maybe for example, 50 people. <Proc Officer G> then if it is above R500 000, that is where we end here at procurement, because I am only a buyer. There is also another section that is called a Contract and Tender Office, where they deal with all quotations from R500 000 and above. <Proc Manager 2> So we invite quotes, a certain amount of quotes from certain suppliers, and then over 1.5 million is a normal public tender. I do not know if you need me to go into more detail? <Proc Officer O> So once the specification has been drafted, then you go to the market, you advertise. At the moment we have service providers which are under the Purco contract, who are doing our advertisements, you know, when we

want to advertise on Sunday Times, Isolezwe and Mercury, then you go, you look for quotations. <Proc Officer F> but if that specific item or whatever is required, the value is R100 000 <Proc Officer K> So we evaluate that, and the requirements that were stated in the needs, we use the evaluation criteria that was set out when going out to tender with the specifications and all that. <Proc Officer O> Normally your mandatory information, your functionality and your price and BBBEE, they adjudicate. Then from there, you do a report, you know, a report of - it is like a sequence of events report, to say maybe the tender was advertised on this day and these are the people who responded, and these are their prices, and this is the evaluation. <Proc Manager 3> And then – or before you are closing the advert, there will be some brief meeting, where now on a brief meeting where, I mean, the supplier and the end user will be there, where supply chain will be like the chairperson of the meeting, like normally happens. And then they will discuss and those things, and then the supplier will ask questions if they do not understand what is the scope. <Proc Officer K> And when we are advising of their disqualification or their unsuccessful bids as well, we put the reasons there, so that we make sure that we are open to them and we are transparent. And we give them a chance to appeal for five working days, before we can finalise the award. <Proc Officer O> normally our tenders close at 12:00. You close your tender and you do the opening register of price, where you will publish the register on the website, to say these are all the service providers who responded, and these are all their prices. <Proc Officer O> Then from there, once it has been approved by all the people who are supposed to approve, then you can start to issue the regret letters to those who are supposed to receive the regret letters.

The process of approval also becomes important, and this is due to the following factors, which inform it. The departments themselves hold the position of having the ultimate approval. In most cases, the head of the relevant department is the one to carry out this duty. However, in some cases, consent must be granted at the highest level of authority. The procurement process was also connected with the Delegations of Authority for the approval process. Once approved by the department, procurement generates an order number. Before approval, the HOD or Department Head has the authority to question anything. When the procurement process is completed, whether it is a standard procurement or a tender, it is critical that invoicing is completed and the supplier delivers the required products and services. The procurement department is also responsible for ensuring this. <Proc Officer I> Once I have sourced quotations, I will then attach those quotations to the requisition online. And then after that, I

put everything on the system and then it goes back to the department for approval. <Proc Officer J> they place the requisition on iEnabler system, and then it comes to me for processing. And once it is approved by their line managers, then I issue the order number. Once the order number is – once I have the order number, then I email it to the supplier and the administrator involved. <Proc Officer C> And then from there they go to the budgeting officer, and then they go back to the department's HOD for approval before they come back to procurement for placing of orders. <Proc Manager 5> and then from there, after that the process has been done, I then it's going to be – currently we upload those quotations and requisition on the system, and then it goes to the approvers, as per their delegation of authority, like R100 000 it is managers and HOD, above that it is directors then Deans. Above that it is DVCs – I mean, above R500 000 is DVCs, until you reach a maximum amount where VCs are approving. Above R3 million, that is where a VC will come in to approve. <Proc Officer F> So if we are all happy, then it is done, everyone signs, then it comes back to me, because it is the actual document that I am talking about. You print the quotation, you print your scoring, you give it to your manager to sign, you send it to the end user and they sign. Then you come back, you process them now on the system. <Proc Officer F> so our delegation of authorities is also – our system is also aligned with our delegation of authorities. Then once everyone has approved, then it comes back to me as a procurement officer to generate a purchase order. Then I do that, then I send the purchase order to the supplier. Let me stop there at the moment, unless if there are any follow-up questions. <Proc Officer M> so we verify all that, make sure it is there, and then we would complete the process on the buyer's side, and from there it goes to the approver. <Proc Officer Q> once it is approved by the management or whatever, it comes back to me, and then I then convert it into a purchase order. So that is basically the process that we follow here. <Proc Officer O> Then from there, once it has been approved by all the people who are supposed to approve, then you can start to issue the regret letters to those who are supposed to receive the regret letters.

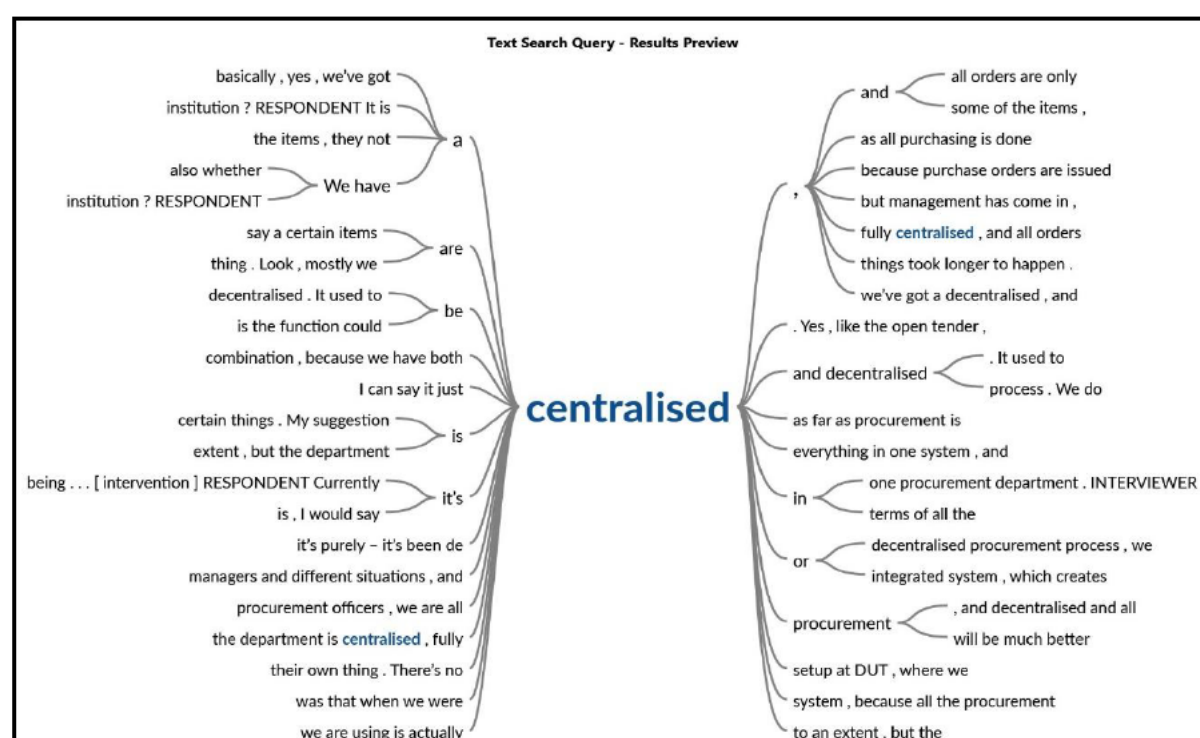
- Centralised versus Decentralised

This sub-theme determined whether the procurement procedure at the institutions was more centralised or decentralised. It was shown that most institutions used a decentralised to hybrid strategy. According to Purchase Control (2019), procurement officials have a location to store product details and images, keep track of orders, and record comments from suppliers so they

can monitor which suppliers are the easiest to deal with. Because of this, it is simpler to combine skills with affordable prices. In the end, switching to a centralised platform for buying will let procurement officials automate procedures. This will simplify the procurement process and make it simpler to determine how an organisation will profit overall.

Centralised – Six participants confirmed that their institution had a more centralised approach. This was primarily because the majority of the procurement was handled by a central procurement office. Each buyer was assigned a department to manage procurement for. Furthermore, their systems are developed in a centralised manner.

Figure 6.11: Word Tree of Centralised Procurement



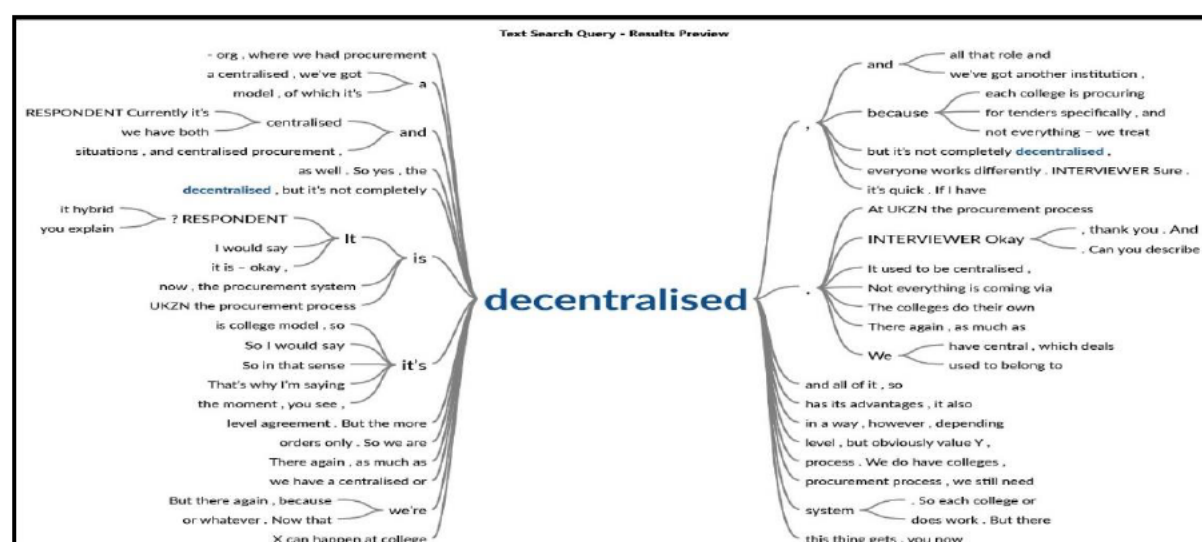
Source: Compiled by Researcher from the Information Analysis of Nvivo – 2022.

Decentralised sub-theme was informed by departmental, college model and different situations. Each college/school has its own financial and procurement department, as well as its own buyers, at some institutions. For the most part, these departments handled procurement. One institution used the College model, which meant that each College was responsible for its own procurement. Only significant tender-type purchases were routed through the central

office. Because each College, Faculty, and/or Department has different demands, a decentralised approach was also adopted. Each college/school has its own financial and procurement department, as well as its own buyers, at some institutions. For the most part, these departments handled procurement. One institution used the College model, which meant that each College was responsible for its own procurement. Only significant tender-type purchases were routed through the central office. Because each College, Faculty, and/or Department has different demands, a decentralised approach was also adopted. However, the majority of higher education institutions use a hybrid strategy that incorporates both decentralised and centralised procurement departments. The following is what inspired this conclusion.

While the department in question is responsible for the majority of the procurement process, the central procurement office takes over when the Rand value of the purchase exceeds a certain limit and calls for an open bid procedure. Also, there is a method for delegating authority through which the departments are responsible for doing the work necessary to source quotations and designate suppliers at their own departmental level. Nevertheless, the central procurement office is required to be involved in a few of the processes. Due to their own requirements, departments and schools can make their own purchases and are subject to their own official pricing. The hybrid model is strengthened by the involvement of PURCO in the procedure.

Figure 6.12: Word Tree of Decentralised Procurement



Source: Compiled by Researcher from the Information Analysis of Nvivo – 2022.

As per participants views on decentralised were as follows: <Proc Officer H> Okay, ours is, I would say it is centralised, because purchase orders are issued from the supply chain department only. So currently what is happening is each buyer is allocated a department to issue purchase orders on behalf of them. So like with – maybe I should say decentralised/hybrid, because things have changed a bit, okay, from the time I was here to what is happening now. <Proc Officer I> we have a centralised system, because all the procurement is done here at the SCM. <Proc Manager 5> at the moment I would say it is purely – it has been decentralised as far as procurement is concerned. <Proc Officer N> and employees, I mean, there is lack of training at the moment with certain things. My suggestion is centralised procurement will be much better than decentralising. <Proc Officer C> The system that we are using is actually centralised, as all purchasing is done at procurement, we do not have faculty procurement officers, we are all centralised in one procurement department. <Proc Officer G> Each department – okay, the university is a huge place, so all departments have got their budgets, I am saying it is decentralised. <Proc Officer N> it is decentralised. <Proc Officer R> it is decentralised. There again, as much as decentralised has its advantages, it also has – so one of the biggest advantages was that when we were centralised, things took longer to happen. <Proc Officer J> Our system now is college model, so it is decentralised. <Proc Officer P> it is decentralised. We used to belong to a central procurement, which was part of the finance at the university. And then we changed – they devolved into colleges, and we – I am currently working <Proc Officer A> Lecturers, students and the HEI X's community. So I would say it is decentralised. <Proc Manager 2> and like I said, we do have a hybrid model, with the lower values being managed by the college officers themselves. <Proc Manager 4> I think it is a combination, because we have both centralised and decentralised process. <Proc Officer K> It is decentralised in a way, however, depending on the thresholds, there is a central office which is now responsible for bigger or larger value bids that have to reach, now go out to the public, that have to be advertised externally. <Proc Officer L> Okay, our institution, I would say is different, because it is using a college model, of which it is a decentralised system. <Proc Manager 1> Okay, there is a hybrid model works, it is a value-driven hybrid model, so meaning – the university has got six functional areas, which is obviously the four – your four colleges, and you have got the support service, and then – which there is the student part and the obviously the general part. <Proc Manager> Okay, so I would call it a hybrid to an extent – okay, basically so what happens, departments are allowed to get pricing, obtain quotes, source quotations. <Proc Officer B> Ja, that hybrid

more a good word here. I will tell you why. I think my colleagues may have told you the same thing. Look, mostly we are centralised in terms of all the procurement offices that sit here, except for one in Martizburg, at our university there, Etienne. You probably spoke to him. <Proc Officer M> So basically, yes, we've got a centralised, we have got a decentralised, and we have got another institution, that is Purco, that's there to assist. And that, I think - the way we are operating now, I think management needs to inform more of the procurement personnel to support Purco more and more. I mean, that is my viewpoint, because you do have a lot of new colleagues coming in. We guys would know about the use and the value of Purco, but I do not think the new ones – well, I do not know if management is grooming them into it, but that should be one of the things.

6.6.3.3 Primary Sub-Theme 3: Current Supplier Management Process

This subtheme determined if a supplier relationship management system was in place. The majority of the results, however, point to nonexistence of a procedure for managing suppliers' relationships.

6.6.3.3.1 Sub-Themes

- Absence of relationship

Discussions held by participants made it quite clear that there was no supplier relationship management process in place. There was not a proper procedure in place for dealing with suppliers. According to Sebola, Zitha and Mamabolo (2016), the National Treasury Practice Note No. 08 of 2007/2008 issued in terms of section 76 (4) (c) of the Public Finance Management Act, 1999 prescribes that Accounting Officers/Authorities should compile a list of prospective suppliers to be used for the procurement of goods, works, and services in line with the procurement thresholds. This list is to be used for the procurement of goods, works, and services. It goes on to stipulate that once a list of this kind has been prepared, price quotes should only be solicited from the individuals on that list. In the absence of an electronic supplier database and relationship, officials have the opportunity to rotate their preferred service providers without the necessary capacity to execute for personal gains, which has the potential to affect the quality of services. This has the potential to affect the quality of services.

According to the findings of the study, the implementation of a Central Supplier Database (CSD) by the National Treasury would significantly contribute to the resolution of the issues described above anomalies.

There was no relationship with the suppliers on a long-term basis. As per participant: *<Proc Manager 4> it does - based on a contract that we have signed, there is no any other relationship such as supplier development. So I think the type of relationship that we have is probably at arm's length, if I can describe it that way. Because it does go on a tender process, and we go with the supplier, and we just conclude a contract. When the contract is over, that is it, and there is no long-term relationships.*

The only time that suppliers were contacted was during the exact period in which their goods and services were required. It was a more reactive relationship, with the supplier being called for their goods and services and if there were any questions. In addition to this, a call would be made if there was a need to negotiate rates. Email and phone calls were the primary means of communication for this. There is also no feedback received on the performance of the supplier, which prevents the department from knowing whether or not the supplier is providing high-quality goods and services. As a result of most institutions adopting a decentralised approach, the majority of institutions' interactions with their suppliers take place at the level of the individual or the department. As a result, it would appear that there is no need for a relationship to be maintained with the suppliers at the central level.

<Proc Officer N> the only time we meet the suppliers is when we issue a tender document to them, or if they are dropping off a tender document, or when there is a public opening. That is the only time we will meet the supplier. <Proc Officer O> actually, when you look at the supply chain, I think it is the last stage of the supply chain where you do your supplier performance. We do not do that here, so we do not have any relationship with suppliers, it is just a matter of us buying. Once the suppliers delivers, then that is it, it is finished. <Proc Officer J> currently there is no relation – there is no process in place.

Notably, a significant number of respondents mentioned that there was a lack of standardisation in their interactions with suppliers. Every department and employee devised their very own system for getting in touch with and working with the many suppliers. In addition, the organisation of some institutions was disjointed, which resulted in distinct procedures. As a result, there was no transparent or standardised method for the interaction with the provider. According to Munzhedzi (2015), if the connection between public sector procurement and corruption is not sufficiently handled, the problem will ruin the state's capacity to provide services since it puts a significant hole in the public purse. The researcher is of the opinion, which is supported by Munzhedzi (2015), that non-compliance to procurement procedures and the absence of a supplier relationship process paralyses the machinery of the state, which is responsible for providing services to the people. Importantly, inconsistent systems and databases made it impossible to swiftly add new suppliers, update existing ones, or even erase information about them. Moreover, it was impossible to add new suppliers. Additionally, it was not possible to search for a supplier in the database in an easy manner.

As per participants: *<Proc Officer N> no, there is nothing, nothing, nothing. I know my previous manager, we had a few meetings, where we were supposed to have a workshop with suppliers, and call them in and tell them, this is ..., this is our requirement, this is how we work, discuss the policies and everything with them, but that never materialised. <Proc Officer R> I do not know if there is a formal process that happens, but – supplier relationship management, let me see. So we have suppliers on the database. The reps would meet or pay me a visit every now and then. If there is a problem, I would write to them or call them in. But there is no formal process as such, there is no, as far as I know it, and I have requested for this a few times; we need to have a blacklisting process or something. <Proc Officer C> for us as buyers, basically, I would not say that there is a system that we are really using. <Proc Manager 4> so there are some gaps that we do not really get feedback on, in terms of performance of the supplier, to understand how the supplier is performing, or where we can assist. So there is no proper contract management in place. <Proc Officer L> I would not say we have one in place, because the suppliers, they get to deal with the users, not the procurement officers, procurement officer has received a purchase order, they send it back to the users. It is the user that gets to communicate with the supplier. <Proc Officer P> Okay, because we do not get many quotes, we are not too involved with a lot of the suppliers. <Proc Manager 1> In the interim, as and when we need to liaise with suppliers, be it whatever challenges we might have*

or issues that we might have, then the relevant person or persons would contact suppliers in that regard, and we take it from there. <Proc Manager 2> Yes. Because Purco said, no, we do not mind to come and train supplier on how to do your requisition, all those things. <Proc Officer H> But currently with us, we are still lacking in that part, we are lacking a lot, because like for an example, like maybe there's an emergency and we are asking one of the suppliers to assist us, where there has not been a purchase order issue yet. <Proc Manager 1> When it comes to then the actual supplier relationship management part of it, should the need arise, and I must be very honest, it is not an area that we are highly focused on, and purely because of resources and the structure of our department, you know, we do not have. <Proc Officer D> It is a bit of a difficult one, in that as procurement there is not that sort of consistent engagement, I would say, where every so often you would be able to actually sort of follow up and requesting quotations directly from the supplier. <Proc Manager 2> and loading suppliers onto our database and managing those relationships. I think one of the biggest problems we have in this institution is just the nature of the work that is done. It is pervasive and across basically all industries in South Africa, which makes managing your supplier database very difficult. <Proc Officer L> But in the university X we don't have that platform, because even our database system, it is not very constructive, it is not user-friendly, because you cannot even search a commodity per supplier. Some of the suppliers, they have information that is long overdue, so it is outdated information on the supplier database, so I would not say that it is that supplier relationship in our institution. <Proc Officer A> it is not good, in a sense that we would normally have someone who will update our supplier list. But now we find that there are suppliers that we do not use, because we do not find them on the list, yet they are on the database. <Proc Officer K> Yes, we can do more, because sometimes you would find that a bigger chunk, we only rely on the paperwork that they submit to us, without us not having to go and physically verify and check. <Proc Manager 1> because for me, anything when it comes to bribery and fraud in the system, I treat it as a crime.

The validation of suppliers was another issue that needed attention. The majority of operational challenges are caused by the procurement practises that are being followed to acquire goods or services. This may be the result of buyers who are not consistent with the procurement procedures, suppliers who do not meet the qualification requirements, or a need that was not legitimate (Volker, 2004: p. 3). It was necessary to increase the number of verification processes that involved physically inspecting the suppliers. At the time, there was an excessive

dependence on merely the documents that were supplied by the suppliers. There appeared to be a shortage of supplier qualifications as well. Some suppliers might know how to deliver a service, but they lack the necessary credentials.

Additionally, several people provided contradicting services in many capacities. For instance, a supplier can claim that they offer completely different types of services like catering and building. Thus, greater qualification was required. Because every institution was unique, suppliers needed training to become familiar with institutional procedures. As a result, they needed to be aware that higher education institutions followed different rules, principles, and processes than the commercial sector because suppliers occasionally believed that it was a one-size-fits-all approach. Notably, lack of supplier relationships creates a risk where a preferred supplier may be able to gain access to the system through a backdoor. The fact that public procurement is carried out in a setting that is subject to an ever-increasing level of scrutiny, as well as being driven by advances in technology as well as high expectations on the part of society and government, is the primary obstacle for the effective regulation of this function (Eyaa & Oluka, 2011: p. 35).

- Physical supplier relationship

Some organisations, however, believed that they had supplier relationship management in place. A few institutions have set aside specific days for suppliers to visit and present their services and products. Another HEI provided trainings to suppliers on either the processes that were currently in place or on any new processes that were implemented. Only one HEI actually went to suppliers' locations to check out the space of work.

As per participants: *<Proc Officer F> Okay, firstly, as a supply chain officer, yes, we do have a relationship with our suppliers. A working relationship, let me put it so. <Proc Officer G> Yes, yes, yes, yes. We have a day where suppliers are allowed to come at the university, for example, on Wednesday<Proc Officer I> we do have suppliers coming in. <Proc Officer F> Then in some instances we call our suppliers to – like when we have upgraded the system, we normally call some suppliers and tell them that now we have changed the process of doing things. <Proc Officer F> At the moment, we are in a process whereby we want to visit them. You want to visit them to see where they are based, where they operating. So we want to do*

that, but we are still in the process of coming up with a clear process on how do we do the site visits.

- Verification

At one HEI, suppliers were verified in the following methods. Investigations of the backgrounds of the suppliers were carried out. In order to prevent any allegations of bribery, certain institutions made it a requirement that any gifts received from suppliers be disclosed. At one institution, service level agreements (SLAs) had been established for the various vendors and were followed. Suppliers needed to fill out vendor applications in order for their information to be included in the institutional database.

As per participants: *<Proc Officer F> we give them a day to come and advertise, then ja. And we also do background checks. <Proc Officer F> then on our policy, if there is something that is supplier, they want to give it to you, they are free to do so, but there is value management on that. You disclose it on the book, then you show it to your manager, that I have received something like this from the supplier so-and-so, it was just a gift. <Proc Manager 1> agreement. But the more decentralised this thing gets, you now work on an order basis. <Proc Manager 1> Okay, firstly in terms of – including suppliers onto the database, we have a process; there is a vendor application that suppliers would need to complete. It is an online application process.*

- Feedback

At some institutions, evaluation forms were utilised in order to evaluate suppliers and tell whether or not there are any issues that they are now dealing with and/or how these issues may be addressed. Collaboration was present at one institution in the constant updating of supplier information, offerings, and feedback.

As per participants views expressed on feedback: *<Proc Officer B> and then after we place the order, the service and the response, how soon they got the products or services, etcetera. So that is something quite new that is been instituted, although many years we did have something similar. <Proc Officer C> We also do have supplier evaluation forms that we actually send to the departments, in terms of if they are actually have difficulties with certain suppliers, that they can actually fill in that form and send it back to us, and then in that manner we can engage with suppliers, in terms of finding out what are actually the problems. <Proc Officer E> we do have an evaluation – no, that's not supplier relationship, but that would be just monitoring. <Proc Officer K> and we update it, in terms of updating their records as well, we keep their records and we update that on a regular basis.*

6.6.4 Primary Theme 4: Public Procurement Policy and Principles

This key theme examined the entire policy and principles that governed the procurement process. This theme displays the results of policy and principles. At institutions, procurement policies and procedures are crucial documents. They create the fundamental principles and standards and outline the processes that staff members are required to adhere to regularly in order to ensure that procurement practices are effective and compliant. In this primary theme, four primary sub-themes were identified, and thereafter each primary subtheme had a relevant set of sub-themes. The procurement policies of an institution provide an outline of the overall concepts and standards that are utilised to set direction and impact decisions. It directs the decisions that employees make in response to a predetermined set of conditions within the context of the objectives and goals that have been established by senior management.

Table 6.9: Theme Four – Public Procurement Policy and Principles

| Sub-Research Objective | Main Theme | Primary Sub-Theme | Sub-Themes | Study Construct |
|------------------------|---|---|---|-----------------|
| | THEME 4: Public Procurement policy and principles | 1. Importance of Public Procurement Principles | <ul style="list-style-type: none"> • Guidance • Control and Governance • Management and Improvement • Ethics | PROCESS |
| | | 2. Procurement Policy currently in place | <ul style="list-style-type: none"> • Updated Regularly • Effectiveness | |
| | | 3. Main Procurement Principles that are followed | <ul style="list-style-type: none"> • Fairness • Competitive • Transparency • Accountability • Integrity • Value for Money | |
| | | 4. Public Procurement Policies influence on Operational Processes | <ul style="list-style-type: none"> • Responsiveness • Flexibility • Agility | |

Source: Compiled by Researcher from the Information Analysis of Nvivo – 2022.

The main theme is supported by four distinct primary sub-themes. The Primary sub-themes 1, 2, 3 and 4 have a total of four, two, six and three sub-themes, respectively. The findings of the investigation allowed for the identification of the key theme. The findings and results that were mentioned by each participant are listed in Table 5.9.

Table 6.10: Theme Four – as per Participant

| Theme 4 Technology and Procurement | P.O A | P.O B | P.O C | P.O D | P.O E | P.O F | P.O G | P.O H | P.O I | P.O J | P.O K | P.O L | P.O M | P.O N | P.O. O | P.O P | P.O Q | P.O R | M 1 | M 2 | M 3 | M 4 | M 5 | M 6 | M 7 |
|---|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Primary Sub-Theme 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Sub-Themes</i> | | | | | | | | | | | | | | | | | | | | | | | | | |
| • Guidance | | | | | | X | X | | | | | | | X | | | | | X | | | X | | | |
| • Control and Governance | | X | | | | X | | X | | X | X | X | | | X | | X | | | X | X | | | | |
| • Management and Improvement | | | X | X | X | | | | X | | | | X | X | | | X | | X | X | X | X | X | | |
| • Ethics | | | X | | | X | | X | | X | X | X | | X | | X | X | | X | X | X | X | | | |
| Primary Sub-Theme 2 | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Sub-Themes</i> | | | | | | | | | | | | | | | | | | | | | | | | | |
| • Updated Regularly | | X | | | | | | X | | | X | X | | X | | | X | | | | | | | | |
| • Effectiveness | X | | X | X | | X | | X | | X | | X | X | | X | | X | X | X | X | X | | X | | |

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|
| Primary Sub-Theme 3 | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Sub-Themes</i> | | | | | | | | | | | | | | | | | | | | | | | | |
| • Fairness | | | | | | X | X | X | | | | | | X | | | | X | | X | | | | |
| • Competitive | | | | | | X | X | | X | | | | | | | | | X | | | | | | |
| • Transparency | | | | | | | | X | | | | | | X | X | X | | | | | | | | |
| • Accountability | X | X | | X | | | | | X | | | | X | | | | | | | | | | | |
| • Integrity | | | | | | | | X | | | | | X | | | | | | | | | | | |
| • Value for Money | | | | | | | | | | | | | | | | | | X | | X | | | | |
| Primary Sub-Theme 4 | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Sub-Themes</i> | | | | | | | | | | | | | | | | | | | | | | | | |
| • Responsiveness | X | X | X | X | | | X | X | X | | X | | X | X | | | X | X | | X | X | X | | |
| • Flexibility | | X | X | | | | | | X | X | X | X | X | X | | X | X | | X | | X | | X | |
| • Agility | X | | | | X | | | X | X | | | X | | | X | | | | | X | | | | |

Source: Compiled by Researcher from the Information Analysis of Nvivo – 2022.

underwent recent revisions in 2017 with the goal of improving all currently used procurement procedures.” More crucially, the PPPFA's recent amendments guide standard operating procedures and uniformity in bid and contract records, allowing for the efficient management of procurement and finance in the South African public sector (South Africa's Republic, 2005:5). To ensure that all revenue expenditures, assets, and liabilities of the government entities are managed efficiently and effectively by those who have been given the aforementioned responsibilities, the Public Management Finance Act (PMFA) of 1999 was introduced in supply chain management and is heavily utilised within procurement at the national and provincial levels. The "Accounting Officer must ensure that the department, trading entity, or constitutional institution has and maintains: an appropriate procurement and provisioning system that is fair, equitable, transparent, competitive, and cost-effective," according to Section 38(iii) of the PFMA, 1999 (Badenhorst-Weiss, Strydom, Strydom, Heckroodt, Howell, Cook, Phume & Horn, 2014: p. 211).

The first step that was taken was to identify the common conception of public procurement. The views expressed by participants may be broken down into categories.

6.6.4.1.1 Sub-Themes:

- Guidance

The aspect of guidance became a primary subtheme in terms of the importance of public procurement policies. It was informed by the following: *Consistency* – The policy provided consistency whereby people could follow it as so there could be standardisation in processes. *Doing things accordingly* – Policies would allow for people to adhere to them and do procurement accordingly in terms of what needed to be done and by when. *Pricing* – Policy also guides pricing of items thereby minimising over expenditure. *Quality* – Quality of products and services could be maintained by ensuring that proper suppliers are being used to provide a service. *Reporting structure* – The policy also helps when it comes to reporting to higher levels and structures. Reporting can be done in accordance with the policy mandate and requirements. This makes reporting easier and standardised.

As per participants: <Proc Manager 4> the policy is also the manual that we apply in procurement, we use that policy. Even if I am new, I have only been here for a 1.5 years, but when I came in, the first thing that I looked at was the policy. <Proc Officer G> So even every department has to have a set of policies and principles that they are working in line with, in order to check if maybe they are doing according to that, because from time – every year we have got auditors, so policies and principles, they are serving as a guideline, so that we know what we are supposed to do at what time. <Proc Officer F> But the main purpose, even if we want to buy – the procurement is for buying, but the other purpose is for saving for the university as well. <Proc Officer N> On our specifications, we try to guide, you know what I mean, you have got to – I mean, you have got to be specialised in this field. <Proc Manager 1> But I think the only way now, when it comes to higher education, it is the reporting structure when it comes to the policies, because I think on government, there is an office which is independent from those institutions, like National Treasury, where – which they – if, let us say you are a director at a municipality, you see there is something wrong you can only think that report it straight to the National Treasurer. <Proc Officer G> Yes, I think public procurement policies and principles are important, because they serve as a guideline how to work, which route to follow. As you know, we are reporting - even as an institution, there is a reporting structure which we are reporting to.

- Control and Governance

Policies also served to ensure control and governance. Financial control was the most highly ranked factor. Policies helped significantly in ensuring tighter control of finances. This mitigates wasteful expenditure, over expenditure and related misuse of funds. Furthermore, policies assist in general control of how procurement is done in line with principles of the policy which in turn promotes effectiveness and efficiency in procurement. Policies also provide a framework for governance and this guides people to work within the framework. In addition, the policy also allows for proper authorisation of processes and this support accountability. The policy also serves to resolve conflicts and disagreements whereby if questioned by requestors or end-users, the policy can always be referred to.

As per participants, views expressed on control and governance were as follows: <Proc Officer F> *so they are very important. They save money, that is the first importance. They give you the controls. It provides you with the controls, financial controls. It is also safeguarding you on how to do your work on a day-to-day basis.* <Proc Officer K> *If they were not regulated or did not have policies or something that are a guide or a restriction, it could easily – you know, the public – the funds of the institution, because as a procurement system, we are dealing with spending, so things could spiral out of control, they would not be controlled, and there would be financial costs and repercussions.* <Proc Officer O> *they are an important part because they drive – you know, procurement forms part of the spending, you know?* <Proc Officer Q> *Yes, they are very important. We need to have public procurement policies and principles in line, to keep people in check, to ensure that people are not doing what they want to do with the funds. There has to be principles and policies in place, which we do have in the institution currently.* <Proc Officer L> *As I have said earlier that the higher education institutions are falling under the Schedule 3A, of which it is exempting them from the public procurement policies that are commonly used by other institutions, like Schedule 3C, 2B, the municipalities themselves, and government entities.* <Proc Officer B> *I firmly do believe in governance.* <Proc Officer F> *so when you are working on supply chain or on procurement, if there is policies and principles, you already know what to do and what not to do.* <Proc Manager 2> *you know, the thing is that they provide the framework in which you should work. They give you the thinking of the country.* <Proc Officer R> *Well, most definitely. We need to be guided by some sort of framework.* <Proc Officer H> *So the policies are very important.* <Proc Officer J> *But what is lacking, is that people are not given time, maybe like a session whereby a policy is represented to them, and the importance of using the policy, whatever you do. We as finance, we always have to enforce something.*

- Management and Improvement

Policies also serve as effective management measures and improvement of organisations. Financial Management again ranked highly. Policies serve to provide effective management of funds. This means that funds can be allocated and spent appropriately. Funds can be spent based on thresholds and respective processes that guide those thresholds. This ensures sound financial management. Around the world, public procurement has been shown to have a significant impact on both the operation of government departments and public bodies as well

As per participants: <Proc Officer H> Yes, they are. They are very important, the policies, they are, and the processes, they are, because at the end of the day here we are dealing with money, and it is not our money, it is the public's money, so there needs to be ways of how to handle such things. <Proc Officer I> I think it is important to have those policies and principles, because otherwise the end users, I do not think they would be disciplined in using the funds in a proper way. <Proc Manager 3> Ja, so by having those in place, you are safeguarding the institution as well. <Proc Manager 5> you remember these are public funds that we use, and we need to make sure that they're well managed, that the assets of the university are protected. <Proc Officer Q> I was telling you about our threshold values that we have. So that follows our procurement – we have a university procurement policy in place. So also the way you go ahead and procure items, you need to follow a specific process. <Proc Manager 2> obviously there is a reason why it is there, and there is many reasons for that. Like you say, why is there a – Treasury has put these systems in place for many reasons, and I think proper financial control, because it is public funds that we are using. <Proc Officer N> So the policy is the most important thing, so you have got to go within that policy. <Proc Officer D> The management of funds, it is necessary to have policies and principles in place, because I think naturally as humans, what is not coming out of my own pocket, I can spend more easily than when it comes from my own pocket directly. <Proc Manager 1> If it was a free for all, I do not think the institution will be able to achieve its goals, because there will be a lot of a personal interests decision-making that is being done, which might not actually be congruent with the university. <Proc Manager 3> And also it gives - sort of, if an organisation have like all those policies in place, it gives it an edge, to ensure that whenever they are buying, they will ensure that they are getting the goods which are of great value as well, in terms of quality. <Proc Manager 4> and of course sometimes we may not get the best in terms of pricing. Pricing can become a problem, we may not get the best pricing. That becomes a challenge. <Proc Manager 4> If one of the principals is value for money, I ensure that I am not just buying from the lowest service provider, I ensure that it is giving us value for money. I do not just buy for the sake of having goods or services. So it is basically what guides in the process. <Proc Officer M> Like we say, if you do not have set policies, the guys are just going to produce one quotation for R100 000. But the thing is, you have other competitive suppliers out there. <Proc Officer Q> Definitely they are very important, because I was speaking to you earlier on about our constitution and Section 217 of our constitution, and the objectives that we have there, and I feel like no matter where you are doing procurement, whether it is in a

public entity or a private entity, you need to have those principles in place. <Proc Manager 2> and of course then you look at procurement regulations. And then of course you look at things like BEE, supporting smaller businesses, I mean, it's a government initiative, and it is so important that we follow these prescripts.<Proc Officer C> Policies are basically the backbone, and they can also help in streamlining processes, because policies are something that can be created internally, in order to help streamline work efficiently. <Proc Manager 5> so keeping track of our assets is very important, especially – that is the one thing that our DVC really insists that our procurement policy, as far as assets, is tightened up.

- Ethics

Policies support ethics which is invaluable in the procurement process. Transparency and fairness are promoted through policies. Policies encourage fair processes in procurement and that all parties have transparency in information and all are on the same page. They serve to mitigate risk for the institution so the institution does not become vulnerable to unethical circumstances such as bribery, fraud, financial mismanagement and other legal liabilities. They promote accountability and ensure that everyone can be held accountable even when things go wrong.

According to the findings of a study that Sibanda, Zindi, and Maramura (2020: p. 2) carried out in the field of Supply Chain Management (SCM), accountability requires SCM public officials to report on, explain and justify activities, accept responsibility for the outcomes of municipal financial expenditures, and account for those activities. Despite the existence of SCM systems, public institutions in South Africa continue to struggle with inefficiencies in terms of efficiently acquiring, tendering, and sourcing products and services. The consistent inability to establish, implement, and monitor effective SCM systems, supervision, internal controls, and financial reporting processes is a critical issue that contributes to regressions in the audit results of local governments. These factors include financial reporting procedures.

As per participants: <Proc Manager 4> Yes, I think it is important. It is an important part. Why? Because we have to be guided, we cannot work without being guided. Policies and principles are what guides us. <Proc Officer P> because basically you need people. You need to have these policies and procedures in place, so that everybody is on the same page. <Proc Manager 1> Some of the reasons for that, they are public funds, so you have got to spend it wisely, you have got to be transparent about what you do, you have got to be fair in what you do, in your dealings. So I think fairness, transparency, things like that. <Proc Officer C> Policies are actually a very important part, because it is what governs the institution in terms of our purchases, and at the same time they ensure transparency. <Proc Officer F> So supply chain at the one who can make you function, but they have a risk, a huge risk. So the procurement policies, they are there for us to follow, to – it is like they provide us with the – they minimise risk. <Proc Manager 2> But it is important, because policies in general give us the risk appetite of the institution to which they relate. <Proc Manager 3> so ja, I think they are key, in terms of they give sort of like a structure on how you do things, when and how. <Proc Officer J> And what I like about our system, is that whatever we do, it gets audited annually, so it is very critical that we have these policies and principles in place to control the corruption, and the irregular expenditures are monitored, we do not just spend without being questioned. So they are very, very important to be in place. <Proc Officer H> So you are going to be accountable, because if you are not following the policies and how things should be done, the processes, you account for the things that you are doing right and the things that you are doing wrong. So it is very important.

6.6.4.2 Primary Sub-Theme 2: Procurement Policy current in place

6.6.4.2.1 Sub-Themes:

- Updated Regularly

Almost all Institutions reported that their policy was in place and updated regularly. These were updated within the last year or the last 2-3 years at most. It was also reviewed regularly. However, some participants were unsure how old the procurement policy is and how often it changes.

This is supported by some of the responses as per participants: *<Proc Officer H> Yes, we do have an SCM policy here at my workplace. I am not sure how old it is, maybe it is for two years or three years, but what I have noticed is that every time there is maybe new management, they change the policy as well, because new – those people, they come with new ideas, like they are able to see the loopholes with the policies that you <Proc Officer K> we do have a policy that takes a lot from public procurement regulations and principles. I know the policy was renewed recently. It was updated last year or the year before last, April, yes, with added regulations and controls. It seems to be effective. <Proc Officer L> The policy was last reviewed in 2018. We do have a procurement policy in place, and we have another one that is an implementation policy, of which it adds to the old procurement policy that was reviewed in 2018. <Proc Officer Q> and it was reviewed again, I think it was in 2021 or something we reviewed it. <Proc Officer B> The current policy was approved around October, November last year. We did have a policy, this is the latest one that was approved. And I think there was still some kind of changes it's going to go through.*

In light of the above, in a study by Patrucco, Luzzini, and Ronchi (2016: p. 740), the authors noted that policymakers, academics, and practitioners all agree that public policy (PP) has changed from a set of clerical signoff-heavy activities to a strategic function that improves public organisation efficiency, controls markets, and fosters sustainable development. The public procurement system specifically strives to achieve efficiency and "value for money" in the use of public funds, while following national laws and procurement standards, as well as the needs of the country. Therefore, it is crucial to consider if a procurement system eventually achieves its goals and, in the event of performance gaps, what type of corrective steps should be implemented.

- Effectiveness

This subtheme was very important in determining whether or not the policy was successful. Overall, there was a lack of consensus over the effectiveness of the policy, which might be interpreted to mean that it was effective but that there was potential for advancement. The policy was seen as effective due to several factors. The policy did serve as strong measures and controls for overall procurement. People were meant to follow the policy diligently as it informed defined processes for procurement. It also promoted transparency and accountability.

At some institutions, staff could get warnings for violating policy. The policy became a strong point of reference. Some referred to it as the ‘Bible’. This implied strong adherence to the policy when it came to procurement as it spelt out everything that could/could not be done during procurements. If there was any uncertainty by staff, then the policy could be referred to. Notably, the policy improves the BEE status of the institution as the it promotes BEE-rated suppliers. Furthermore, the policies serve to protect the institution as they prevent conflict of interests between procurement and supply chain officers and suppliers. In some institutions, the policies promote quality whereby the institution can procure quality items through PURCO-affiliated suppliers. At other institutions, policies are stringent and violation can result in the disqualification of a supplier.

As per participants: *<Proc Officer K> It is effective, in that it explains things better, in terms of accountability, in terms of delegations, in terms of – yes, the responsibilities, what different parties or what different stakeholders’ roles are, and the expectations. So ja, that is how it has been effective. <Proc Officer M> It is – you know, if the procurement people and all the users abide by the policy, it is quite effective. But the thing is when you want to deviate from it, then you have got a problem, because like <Proc Officer B> It is very effective because everyone knows, if you do not follow that policy, you get a warning. <Proc Officer D> So it is a very important part of the institution’s procurement system, and the reason for that is, it’s trying to keep up to date and hopefully abreast of the different ways in which people are able to sort of “beat the system”, so it is necessary just to ensure that the policies and the principles that were set out right in the beginning are still doing and achieving what they were intended to from the beginning. <Proc Officer H> It is very effective. <Proc Manager 3> So it gives that guidance of which threshold you need to follow whenever procuring for how much, and then also it specifies in terms of who are the approvers supposed to be as well. <Proc Officer Q> Well, the effectiveness of it, I would say, as my previous point, it provides a guide for us as procurement officers, as well as for the administrators, so when they are procuring items and how they go about procuring items is all in the procurement policy. It tells you what you are allowed to do, what you are not allowed to do. All of that is stated clearly in the procurement policy, so it is for everybody to see and everybody to know. And every time if you – maybe you are in a situation where you are unclear about something, you can just go back and refer to that policy, and it will give you some clear – you know, some clarity. <Proc Officer R> As much as it is time-consuming, it also helps, in the sense that it attracts new suppliers. So it is*

effective in that way. <Proc Officer F> That one is very effective and it is very protective also to us as a staff, because we – you know that you do not have access to see the quotes, so it took away the risk of a supply chain officer to collude with the suppliers.

However, despite policies being seen as effective, many respondents from the various institutions argued that improvements were needed to policy. Enhancement, policies needed to be enhanced in the following ways. Review and Update needed for some institutions, a regular review and update were needed. Also, standardisation of policies across public higher education institutions is needed. Currently, even though the institutions were in the public domain but their policies differed to a degree. This led to inconsistency in supplier relations. Policies needed to be aligned to relevant acts. This was deficient in some institutions. Some institutions were only following acts when it suited them. It should be a standard. From an operational perspective, improvement was needed when it came to the following

Policy vs practice different: Whilst a policy existed on paper, the practices were different. The policies indicated what and how things needed to be done but institutions did not have the respective structures, staffing, and resources to enforce the policies. This led to inconsistencies at the process level.

Efficiency: In some instances, efficiency was slower due to policy. Due to the dynamic nature of HEIs, some payments needed to be made quickly. For example, when an academic needed to attend a conference, there were deadline dates for payment of registrations fees and logistical costs to the conference organisers. Furthermore, if a deviation was required, it needed to go to higher levels of authority which could take time as such people were busy and may not respond timeously. One respondent mentioned that policy formulation did not take the ground level queries into account. It was important for people at such a level to be consulted so the policy can be aligned accordingly. Content, the content of the policy itself needed to be improved at some institutions.

There needed to be more comprehensive content in the policy. There were grey areas and some areas that were subject to interpretation. Another respondent argued that perhaps there should be more than one policy when it came to procurement. This is because some areas required different processes. For example, procurement related to research was very different from ordinary procurement.

As per participants, the detailed views were expressed as follows: <Proc Officer J> *What I can say is that it guides us not to do what will make the university finances and the quality of goods that we are receiving – yes, I can say it gives us a guide of what is required, because you cannot buy cheap stuff for the institution like here, so it guides us, and even the consortium that we are dealing with, Purco, we are using those suppliers that are affiliated with Purco, because they give us the quality that is required by the universities, especially the furniture, the laptops, those ones, we make sure that we go with what the policy is saying, we do not just buy anywhere.* <Proc Officer F> *and it is very – that one is effective because when you send out the quotation, you disclose the closing date and the time. So on an electronic tender box, you can see who – you and your line manager, you can see that, no, these three, there are fine. Maybe the fourth one, he submitted late, so automatically he is disqualified.* <Proc Manager 5> *so it was up – it had not been updated for a long time, but I think there was one in 20 – I know 2011 was the last one. I think it is due to be re-looked at towards the end of this year, if I am not mistaken.* <Proc Officer M> *If I am not mistaken, I think it is 2012, but I stand to be corrected.* <Proc Officer C> *So yes, I do feel that the current one that we have, sort of has some stumbling blocks, which we are still trying to engage with senior management in terms of if we could actually review and see if changes can be made.* <Proc Manager 1> *But I think when it comes to public procurement they need to – we need to have – like for higher education, we need to have standardised policy for all our institutions.* <Proc Officer A> *So they are very important, however, they need to be categorised according to their importance, you know? And procurement policies, right, they should be in place, but sometimes they are ridiculous, I am sorry to say.* <Proc Officer O> *so – yes, we are not sure. So because of that, some of the policies and act of government, we do not follow them, like your – we follow them when we want to, you know? The CFO will normally say we are subscribing. Like your PPPFA, BBBEE, we do not follow those Acts, we just select some sections of those acts and we decide to follow them if we want to. If we do not want to, we do not follow them. But if you check our policy, you will notice that a public policy is supposed to come from those Acts. When you draft a*

policy, it is supposed to be in line with the Treasury regulations, it is supposed to be in line with the PPPFA and all those other Acts governing government money. So now at HEI X we are not sure, even myself. When I hear service providers coming and saying, no, the BBBEE Act says this and this, then I say, we do not use that Act, but only to find out that I think 70% of our money, of the university revenue, comes from the government, because we have the funding from the higher education, the grants, we have NFAS, which is tax payers' money. So I can say a big portion of our revenue comes from the government, so we are supposed to be a public entity or a State own enterprise, you know, by looking at our funding. But it is not the case, you know? So it poses a challenge when you want to follow those Acts because we follow them when we want to, and when we decide not to follow, we say, no, we do not follow those things, we are not a public entity. <Proc Manager 1> But on paper it is a good policy that we have at university, but when it comes to implantation of it, we are not – because we are not up to the standard, but we are trying our best. <Proc Manager 2> I think it does what it needs to do. I think the policy is fine, I think the practices are tricky. You know, in normal industry, you would have a procurement department that handles all the sourcing of the quotes, etcetera. We do not have the staffing to do that. I am in a college of like 500 people, most of which are – you know yourself, you are in this college. <Proc Officer O> we need additional resources. So 2021 they did implement that policy, we are currently using that policy, but we are not using – we are not wholly using that policy, we are partly using the policy, because it touches the structure, you know, it changes the structure, we need additional resources. I will speak, for example, like the tender process. With your tender, you need – according to the new policy, you need to have your bid specification committee, and the committee which will just sit and draft the specification only. And then you also need your bid evaluation committee, the committee which will just sit and do the evaluation. So it is different people; if you sit on the specification, you cannot sit on the evaluation, other than the supply chain person. So I can say it is partly effective, because there are sections that we are using, but then there are sections that we are not using because they are changing the structure, and I do not know how far they are with the new structure, which will have those secretariat positions and other positions, like your supply chain administrators. So with that one, it is not effective – it is partly effective. <Proc Manager 5> Just this morning I had somebody in my office, saying that – well, for various reasons a person was attending a conference and hadn't processed the EFT payment, so this is not through the procurement system but it is an EFT payment. What I would like to see is a – while she is going to the conference and obviously the delay is on her side. So

probably one of the things I would like to see as a system of doing EFT payment, especially local, maybe more often than is being done before. That would be one of the things that would be – would make our procurement policy more effective. <Proc Officer A> It does not have values of saying, 'up to 500 000 and then deviation has to go to the VC.' Even something for R2, if it is a deviation or a condonation, it will go through all those stages. Then how much delay are we actually – like it is delaying the process, because this is very simple, and the reasoning is actually clearer and transparent, and the HOD has actually signed on it to say, 'I agree with this.' So now, why this whole thing? Why this whole – you know? So it just takes forever. And that will take forever, and then you ended up forgetting that, oh, I had dealt with this. <Proc Officer C> It could be better in terms of actually making things easier for procurement, for end users, which is also our clients. So basically if it is difficult for procurement and end users, then for me it is not quite efficient as it should be, because we should look – when creating a policy for the institution, we should look at actually removing stumbling blocks, and trying to eradicate delays as much possibly as we can. <Proc Officer A> because now the problem is that with the higher management, they not include us as the lower staff in the planning or in understanding what we do, so they say and write what they think it is right, however, when it comes to us people on the ground who are actually dealing with the end users, it's actually rigid and it does not work in their favour, which then delays or make us ineffective and inefficient, in terms that it delays some processes. Some things are okay, however, some things are actually not necessary, you know? <Proc Manager 5> I think for a long time our policies were lacking, but they have been updated. I would say that I would like to see more flesh in the policy, because what we have is people saying, where is it in our policy, and sometimes it is not very clear. So sometimes it is open to a matter of interpretation. Just yesterday, I still have not responded to the email, somebody from the school says why cannot I just spend R5000 from petty cash? Why do I have to go through procurement system? She is a challenge, so I am – this came through late yesterday, so I am just about to attend to that email, quote policies, and quote procedures. She is one of our more challenging staff members. <Proc Officer L> so if maybe they could have at least two policies, that will feature the research, but – or the policy can have the component to address the issues that are being faced by the researchers.

6.6.4.3 Primary Sub-Theme 3: Main procurement Principles that are followed

This key subtheme looked at the primary procurement policies that are in place at the institutions.

6.6.4.3.1 Sub-Themes:

- Fairness

Fairness was the most highly ranked across most institutions. This entailed giving all suppliers a fair chance and opportunity. This implies that fairness is a prime principle.

Proc Officer F> Oh, all right. Our main principle on our site, it is fairness of the competition, being fairness. <Proc Officer G> Yes, our main principle is fairness. <Proc Officer H> Also fairness; fairness is very, very important. You need to be fair. You need to be fair. Like in a simple, simple example where you can use fairness, maybe let's say there was a closing date for a submissions of quotations, and maybe the period that you put for the closing of submissions of quotations, the period was too short according to some of the suppliers, they feel that they have not been given enough time to go and source quotations from their manufacturers and all that stuff. So you need to listen to the people and be fair. <Proc Manager 1> so fairness is where there are certain instances, everyone should have an equal opportunity. So and there is various analysis that are being done, that looks at, for instance, the number of procurement that is going to one supplier. It's like right now, if you pick up one supplier being used across the board, you look at the commodities that are there. <Proc Manager 3> Okay, in terms of principles, we are normally follow the normal processes, similar to the PFMA, where we must be fair. <Proc Officer N> so we have got to be fair and honest to every supplier. At the moment we cannot phone a supplier and say, a tender is out. All of our things are advertised on the university website. If it is construction, on the CIDB website and the media, like all the main media papers, like the Sunday Times and Mercury, the Witness, the Zulu papers, all is advertised.

- Competitive

The next highly ranked principle was competitiveness. This entailed dealing with suppliers who were competitive in their prices as so it can have a positive impact on institutional procurement and finances.

- Transparency

Transparency was also a highly ranked factor. This was to ensure that all stakeholders have the necessary information and could question processes if needed.

- Accountability

Accountability was seen as a further important principle as everyone needed to be accountable to the policy requirements.

- Integrity

Integrity was another favours principle and this was primarily in line with mitigating unethical processes such as fraud and corruption.

- Value for Money

Value for money was another key principle and this was a logical argument as institutions needed to ensure that their purchases were of quality and that they were obtaining the best out of the procurement.

As per participants: *<Proc Manager 1> But like I said at the beginning, when it comes to BEE, you cannot say for sure there was a value of money, because the price will be affected, because of those middle man in the procurement system. The value of money, the competitiveness. We try, happened behind our back – or behind my back, I can say. I would not know whether it was fair dealing and all of that, but what I see in front of my eyes, everything we do it as a fair dealing process. < <Proc Manager 1> we try out best to be effective when it comes to*

competition, because we make sure that we get quotes and we test the market, all those things. And then we make sure that fair dealing with as much as we can. <Proc Officer F> so want our suppliers to be as competitive as possible. So we do not want that on our institution, so we will try to make them to be as competitive as possible, even on – when we had site meetings, we make sure that when the meeting is over, contractors, they go, they do not go together, because once they go together, they are going to discuss the prices. <Proc Officer G> Competition, ja. Fair competition, we are using that system, where we source our quotations and we get many people to bid. So it is an open thing. <Proc Officer I> Mainly we use the competitive principle, and it is effective for us as the institution, because we really have to compare the prices, as some of the suppliers can just go up with the price for no reason. But if we compare with other suppliers, and then we can understand the market better. <Proc Officer H> Okay, with us it is transparency, I would say, because even with the tenders – not just tenders, even with the quotation system, the suppliers have a right to follow up and find out how come they were not awarded, and we need to tell them what went about, where were they lacking and where can they improve? So transparency plays a very, very, very important role, because if you are not transparent, you are making people think you are hiding something. So here the main focus for us, is that you need to be transparent at all times, whatever you do be transparent. Do not let people have questions and wonder what happened, everything must be on the table, everything must be shown. Transparency is very important. <Proc Officer N> and transparent, you have got to be transparent. <Proc Officer O> your openness and transparency; the process must be transparent, in a way that – you know, when you have appeals, remember, I did mention that we have the appeal period, where bidders, they can come and appeal? <Proc Officer P> Okay, it is quite open and transparent, and I would say most people would just be aware of the policies and procedures, and then work accordingly. <Proc Officer A> There is accountability there. <Proc Officer D> Okay, I would say it would be accountability. It is sort of all of them, but I think the accountability, in that wherever a – there was an instance where work was done before certain checks were done. There is what we then – there is the condonation process, where as part of the write-up or the report on how it happened, why it happened, there is also a consequent management, where the department outlines that look, the person who gave the go-ahead or who was the driving force behind the contravention of this particular policy, this is then the steps that have been taken against that person, in an attempt to ensure that it does not happen again. So that's why I would say accountability is probably a big one as well. <Proc Officer H> Another one with the

procurement principles, I think that is important is integrity, because everybody knows in procurement, do come a lot of people that have their own – they want to do things in their own way, without following policies and stuff, so we need to be very – you need to have that integrity in you, to know the difference between right and wrong. So integrity also plays a very important part with the procurement principles in our institution. <Proc Officer L> For instance, those ethics committees that they have, they meet like two times a week, and they require a catering, so the user always rotate the service providers for catering. If they use one on Tuesday, the other one that they will use on Thursday, it has to be a different one, to make sure that they rotate the service providers, to limit any may rise, like fraud or anything. <Proc Manager 1> so where value for money comes from is, you are going to go with the lowest quote. So if you are not going to go with the lowest quote, you need to motivate why you are not going with the lowest quote. It's like right now, if I have got three quotes. So I am saying if you are going to give me three quotes, default in terms of the university policies, default is saying you are going to go with the lowest quote. If you are not going to go with the lowest quote, then you need to explain to me why are you not going with the lowest quote. <Proc Manager 3> and then also in terms of getting good value for money, transparent, and then also – what's it? Fair value for the goods that we are acquiring, in terms of price and quality. <Proc Officer M> you've got to look at the best value for money for the institution. Those are things that must be first and foremost, because you are working for the institution, the institution is paying you at the end of the day, so that is your main concern, is value for money.

6.6.4.4 Primary Sub-Theme 4: Public Procurement Policies influence on Operational Processes

This key subtheme was responsible for determining how the effect of procurement rules on operational processes was identified. The primary criteria for categorising it were its agility, adaptability, and responsiveness.

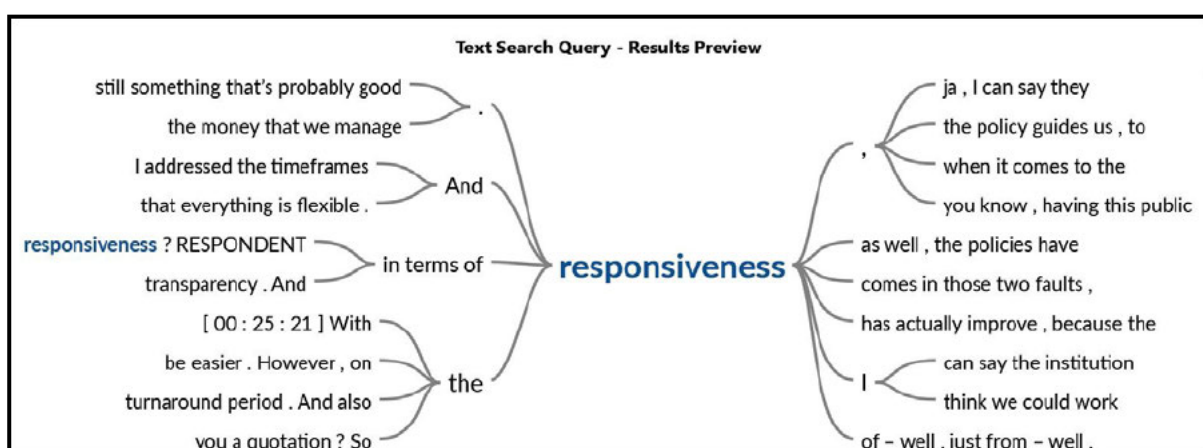
6.6.4.4.1 Sub-Themes:

- Responsive

There was a mixed response to this with some respondents indicating that the policy was responsive and others indicating non-responsiveness. In terms of responsiveness, the following was found.

Turnaround time: The policy does support turnaround time and if correct processes are followed then the procurement is done timeously and products and services are duly received. A lot of communication is done online which further speeds up the process. Notably, *Transparency* allowed people to share information and ensure that everyone was aware of necessary processes. This mitigated confusion and promoted faster procurement processes. Furthermore, suppliers and related stakeholders got to also understand the policy and respond accordingly in their services. The policy became a point of reference and hence staff could refer to it if they needed guidance or clarity, instead of causing delays due to a lack of understanding of processes. The policy was also responsive to change in certain instances. It allowed for processes to change accordingly when the situation called for such. This included the COVID-19 pandemic situation.

Figure 6.15: Word Tree of Responsive



Source: Compiled by Researcher from the Information Analysis of Nvivo – 2022.

However, many respondents believe that the policy was unresponsive due to the following:

- Slows the process – Some respondents felt that the quotation process and supporting documents took much time especially when procurement needed to be done quickly. In some instances, even if a supplier was the cheapest, they could not be selected if all documents were not received. Furthermore, there were lots of channels to go through before obtaining approval.
 - Lack of Procurement Plan – Whilst the policy may be clear, departments lacked a procurement plan. This meant that procurement can be delayed at an operational level.
- Response vs compliance Responsiveness can be compromised by compliance. The policy entailed compliance with all necessary principles.

Notably, the number of stakeholders involved in the procurement process can influence how responsive the process can be. Furthermore, the understanding of the policy from an end-user perspective is sometimes limited and this hinders responsiveness.

As per participants: *Proc Officer G> To meet our deadlines and turnaround period. And also the responsiveness, you know, having this public procurement process in place helps us to have our work to be effective, and we are able to meet our turnaround time, and we are able to do our work following the correct processes and procedures, you know, being guided by these principles. <Proc Officer N> It is quick, because if you are buying equipment, or if – I mean, this institutions here, for the students, everything is urgent. So if we need something done in the student residences, like it has got to be done overnight, so it is quick. Now with everything, like your email is electronic, you do not have to write a letter and scan it and all, you just send an email to your manager and tell her that this is the story, and then she writes to everybody – so like an email now, you could copy, five, six people in, and ask for the approval and you will get it as quick as possible? <Proc Manager 2> I must be very honest, in some ways now with the new policy, it is more efficient, in that, like I said, for one quotation, and this makes a big difference, for one – sorry, for values up to R10 000 excluding VAT, you only need one quotation. Prior to that it was three quotations. And then up to R30 000 you only need two quotations. Again, you would have needed three quotations. So that itself has definitely played a major role, it definitely helps, it makes things more efficient. <Proc Officer G> Even from the user department, because it's very much transparent, so I think, ja, it is very good having*

this in place. Because even if the departments are not aware, we are able to share the policies with them, so that they will know. <Proc Officer K> Well, the policies and the principles have helped, like I have mentioned, it has helped all parties to be more aware of what is expected of them, so that by the time there is a need for the process, there is a need for them to participate in the process itself now, the procurement process, they are aware and the level of participation and the quality of what they bring forward, it enables the process to flow correctly and as it should. You know, they contribute in terms of the specifications and they are adhered to, you know, the regulations, the principles that they must not be biased, they must be transparent in all this and all that. <Proc Officer K> and in terms of responsiveness as well, the policies have helped, like I have mentioned both sides having a good quality participation or an informed participation. It leads to even the suppliers or the stakeholders who are involved, to be more responsive and you get a positive outcome, and ja, the process flows. <Proc Officer D> Responsiveness has actually improve, because the suppliers are forthcoming. I think with them also getting to know that there has been a revised policy, they also then trust that things will be done correctly, and in favour of the principles of procurement. <Proc Officer Q> Okay, so as these policies are a guide for the institution and how we go about operating on a day-to-day basis, I would say – if we are referring to this policy when we're performing our day-to-day functions, I would say that these policies give us an ability to – how can I say? An ability to do things faster, to do things quicker, as we have a guide, as we have something, you know, that we can refer to. <Proc Officer I> With the responsiveness I can say the institution is accommodating to change, because each and every change that comes into the institution, it is given chance, so that we can see how it improves the processes and policies of the institution. <Proc Manager 3> In terms of responsiveness, ja, I can say they respond to the end users' needs, and also in terms of, as I had indicated earlier that prior to Covid we were doing things on a physical paper, and then with Covid, then we moved to paperless. So we respond to the changing environment as well. We do allow that change, and then we adapt to that change, and then the needs as well. <Proc Officer H> Hey, speed is another thing, because to tell you the truth, especially in an educational institution, some people will tell you that the core function here is education, so the most important thing here for them is students, everything else comes later. But for us to service those students, there is something that we need to be bought, you see? So I would say speed, it can be very slow sometimes. <Proc Manager 2> It's inherent in the nature of public finances that, you know, you have got to take a lot more – there is a lot more processes, sort of verification and approval processes, than you might find in a

private organisation. I know, for instance, when we used to – and, you know, engage with some colleagues that – some people in private can really just make a decision, engage with those suppliers, and then get the payment done. There are no three quotes, you know, vetting of the quotes, getting the necessary levels of approval. There are multiple layers, so it makes it incredibly difficult to be flexible and agile. And like I said, it is also public money, which in itself makes it more onerous, and we have got to be – and almost cumbersome, in terms of making sure that you tick every box. <Proc Officer R> See – okay, it – what can I say? Again, it does delay processes. As much as there are times when – like I said, when I need to apply my mind to that particular purchase and whatever, there are also instances where you believe that this should be approved or whatever it is, but we're not flexible in that sense, because the policy says so. And I am just trying to think of instances. Like an instance is, I put out a request for a quote, and there were some supporting documents that needed to come. The company that's the cheapest, but cheapest by a huge amount, didn't send one document through. And when I checked with management, with central finance, it was, 'No, they did not send that document, so we cannot give them that order.', or whatever. But they did not look at the bigger picture. So therefore I say they are not flexible, in that there was an R80 000 saving for one document that the company didn't send. But they have the document, it was just omitted from the set. So we are not very flexible when it comes to the policy as a whole. Again, in terms of me doing something, I can do it fast, but again you are waiting for approvals. Because it goes through so many people before that request gets to me, and even after I process, it goes back to the same people again, so it's very repetitive. So that does cause delays. There are unnecessary delays, and certain processes that can be removed, where we can chop out some of the middlemen in this whole process and get things done. <Proc Manager 4> currently in our institution, if I may say, we don't have a procurement plan which does affect the process. Because if you do not have a procurement plan to say, as IPP these are projects that we are going to procure within this financial year, this is the time by when we need to implement the project, so that procurement can have a plan in place. Because if IPP says, we need to build a dome this year, and it is worth R10 million, then we know for a construction process that is worth R10 million, it takes us approximately six months. So we would have a plan in place that if you want to have this projected started in this financial year then we should start with the process by this time. So without that plan in place, then we have a problem. So poor planning is one of the challenges. No, that is just completely absent, there is no procurement plan in place. We are just working in the dark. The processes are there and good, the policies and

principles and the processes are there, they're documented, they are good, but there is a lack of planning, which then it seems as if we do not have a proper process, which is not true. <Proc Officer M> So when these things are not planned timeously, then we have a hiccup, but if it is done as per schedule and you give the guys time – give the procurement people enough time to go out and get the best quotes, or the user getting the best quotes, and it flows okay. But the thing is, most people tend to keep things for the last minute, and that is when you have a problem; you are not doing the best job that you should have done, for that cost centre. And you could have got more value for money, than just leaving it for the last – a typical example is flights. If you plan your flights or whatever timeously, obviously you are going to get a better deal. <Proc Manager 2> Responsiveness I think we could work on. We try to be responsive, but again, you know, when you've got multiple layers of approval that you need to go through in order to buy something, it makes it difficult to be as responsive as you would like to. And many more stakeholders than – you know, in private you probably have two people involved in a transaction, but here you would have four, five, six people involved in a transaction. It makes it really difficult to manage that type of thing. <Proc Officer A> However, on responsiveness, when it comes to the supplier, some suppliers are no longer responsive, because they know that the job will not come to them. Going back to the fact that people are saying, these are our preferences, so now why would you then go to the next supplier, whom you know that you are not going to give a job, to send you a quotation? So the responsiveness comes in those two faults, to say some suppliers are really fed up with us, they are saying, I will send a quotation, but you're not giving me a job. <Proc Officer C> that is where I think we have also perceived a stumbling block. I would say it is not, not quite response as we wish it would be. Because of all these changes it has actually created a little bit more difficulty towards end users, which in turn actually makes it difficult for end users in procurement to engage in a proper manner, because while we as procurement still have to adhere and ensure compliance with policy, end users actually now find themselves not understanding.

- Flexibility

Regarding flexibility, there was a consensus that although most respondents believed the policy to be flexible, many also believed it to be less flexible. The following elements led to the perception that the policy was flexible:

Emergencies and deviation: The policy did cater for emergencies and hence allowed for deviation thereof. However, deviations needed to be justified and authorised at a very high level. It also catered for unplanned procurement circumstances that warranted some degree of flexibility.

Negotiating and prices: The policy allowed for negotiating with suppliers and ensuring the best price can be obtained.

Empower: It empowers staff with knowledge so they understand when to effect certain actions involving procurement. For example, when to go to tender, and when to waiver a tender. This allows for flexibility.

Understandable: The policy makes things understandable so the staff can know what can and cannot be done.

However, inflexibility of policy was noted due to the following reasons:

- The policy needed to be followed in its entirety which left little room for negotiation or deviation. The quotation process had to be followed accordingly for procurement to occur.
- The policy was restrictive in some institutions whereby certain processes had to be done a certain way.
- The flexibility was also dependent on the 'type' of procurement needed. Some items were specialised and could not follow the standard procurement process.
- At one institution, the procurement system itself was inflexible.

As per participants: <Proc Manager 3> we do we need to ensure that we adhere to them, and then also we follow on those processes on how we go about. And also as I have indicated that we are also – they give you ... they are flexible in a way that if you are not going to be able to meet those thresholds, then you have an opportunity to do a deviation and complete a deviation response. And then also we are adaptive to change. So we are flexible in that way, whilst we enforce also our policies and processes as well. <Proc Officer K> Yes, yes, it is absolutely flexible. But although it is flexible, there are still guidelines that guide that whole process. It allows for emergencies, it allows for maybe sole sourcing and all the other out of the normal processes to take place, but still there are guidelines or there are limitations to everything, to ensure that the process does not get out of hand, there is still accountability, there is still transparency. <Proc Officer L> I will start with flexibility. There are things are called procedure manuals and standard operation procedures that are used to write down to make new arrangements for something that is not covered in the policy. So I would say the policy assists in the operational processes, to make sure that everything is flexible. <Proc Manager 5> In terms of emergencies now, we've got a policy that covers emergencies. I will not get into the details of that. But again, in terms of deviations, where departments would want to purchase from a specific suppliers, what we call single source, is now covered in the policy, and of course there is a process in place. Sometimes departments may not be too – they feel sometimes it might take some time to get that process going, but it is in the policy now that we allow for deviations, single source, and sole source deviations. Of course, your emergency is one of those deviations from the policy. That is why I am saying – the problem, you know what, when it comes to the speed. You know what, the way it works, the speed – when it comes to – if we public procurement, the speed they want to happen, the Deans, it is not right, because they make it look like it is urgent, but it is lack of planning. <Proc Officer I> Yes, I think we are flexible with the competitiveness of the prices. Since we are using that principle, competitive, so that we are able to compare the prices in the market for that particular service or product. <Proc Officer Q> There are situations where quotations will come through from administrators, and the only time I can say I am flexible in that sense, is if I feel like something is wrong with this quotation that they sent to me, maybe the price seems a bit too high, and then I want to go back and approach the market. And then I go back to suppliers on the system and I am like, 'You know, can you give me a better quote for this? <Proc Officer N> I think it educates people to say, you know what, there is a policy in place, you have to follow it, we cannot go out - if we go out of the policy, we have got to do a motivation to say why we want

to go out of the policy or why we want to – we call it a waiver of tender; we do not want to. They have got to motivate, I mean a Dean or a DVC has got to motivate to say we cannot go on tender, because this is a specialised item, there is only one person who has got the – a sole supplier in the country. And that is how we are doing it. <Proc Officer J> Even someone who is new on the system, it takes maybe a month for them to understand the system. I can say it's flexible, in terms of understanding what is required and what you can and what you cannot do. And even the linking of admin to particular cost centres, it is very clear, you cannot process a requisition if you are sitting in another college, without being given access. So I can say our policy, it's understandable, it's easy. Even the timeframe to process requisitions, it does not take a month for you to complete a requisition, so it is easy. <Proc Officer B> So there must be some policy that, you see, you have got the flexibility and all that, that should be allowing, but unfortunately there is no flexibility, it is either right or wrong. The auditors, when they come and they check, and if a certain aspect needed three quotes on purchasing something, and you got two quotes, then they are going to flag it and it is a finding and then you have got to answer. There is no flexibility, because you apply the policy to the letter. You know, there is no flexibility. If you want flexibility, we have avenues called condonation, called deviation, like single-source procurement or single-source deviation. If we deviate, then there is a long report that has got to be done and approved by a procurement director, a CFO and Vice Chancellor, depending on value. So that, if you can call it flexibility, but those are deviations from the policy. <Proc Officer C> Flexibility, I would say flexibility, it is also make things a little bit not too flexible at the same time because there are a lot of implementations that have been changed, that require a lot of paperwork. For example, let us say you get two quotations – or you get three quotations, but the suppliers does not have – or the third supplier does not have all the items that you require. Instead of showing that nonstock availability, now you have to create a whole new report, which is a deviation report, which for me, I actually don't feel it is actually a deviation if you have three quotations, it is just that the other supplier does not have all items in stock. So in that way it is no longer flexible. <Proc Officer M> The thing is, it becomes restrictive, like I said earlier, is when the thing – the users, again, not doing it timeously, or they do not have enough quotes, or there is not enough specification given, it is very vague, or designed just for one supplier. That will be like a sole supplier, and then you are restricting it, you know, there is not enough flexibility. But otherwise, if you give a general specification, that is fine. <Proc Officer Q> In terms of flexibility? I cannot say much on flexibility, because of the type of procurement we are doing here. It is the type of system that

we are using here, it does not allow us to be very flexible, so. <Proc Officer P> Not too much, because of the way the system is applied.

- Agility

The policy was discovered to be quite flexible. However, due to the following, some respondents did see their procurement policy as being flexible. The turnaround time for procurement processes was efficient thus making the policy agile from that perspective. In addition, the policy does minimise operational issues to some degree as it guides a streamlined process. This makes the policy agile in this regard. Online methods such as online requisitions did make for agile operations. However, three respondents did not feel the policy was agile enough. This was because the procurement process and situation can be different at times but the policy was streamlined. This made it difficult to deviate. In addition, at one institution, the College model meant that there was procurement done at College level and central. This left little room for agility as the systems in place were not properly configured for such a model.

As per participants: *<Proc Officer H> But with agility, the things of moving quickly, as I have said, in an institution like ours, for most people their core function is the education. The core function is to teach students. <Proc Officer I> I can say they are done on time, so as soon as the suppliers respond with the quotations, the prices are compared and then the process continues there. So I can think the turnaround time is met. <Proc Officer O> Yes, the procurement policies, they do influence the operational processes. Like, for example, the first one, when you speak of agility, like at the moment I have a project for the roofing – for student accommodation, of which I'm told that if we do not complete this project within this certain time, then students are going to strike. So they do affect operational processes, you know, they can pose...they can pose...they can pose a challenge on the operational processes if we do not process things on time. <Proc Officer E> Okay, agility, we as procurement officers, we have stated that we would tend to any online requisitions and requisitions, within two days. <Proc Manager I> Now, in terms of agility and your flexibility, this area of the institution is always a work in progress. I do not think we have ever reached a stage or instance where nothing was being worked on in procurement. And I can tell you right now, even now the instance that I told you about, a tender that took 18 months, it is currently in progress. Everyone is open arms and trying to work out things there. So the agility and flexibility is always work in progress.*

<Proc Officer L> Yes, all the time I think of maybe a manufacturing or good delivering services, but in the higher institution the speed, it is not much of an issue, because the policy, like for us in our institution, the policy says the turnaround time for all the normal procurements, when there is no deviation or anything, is 48 hours, of which I think it is enough time for us to process the requisition and the service provider to deliver. So I would not say that I have got something to contribute in terms of agility. <Proc Manager 2> you know it is a – there is the college model which causes its own problem. So you have a central department, which updates the master base – the master file. And then we create the orders. Sorry. Okay, so yes, I think the structures and the systems do not always allow us to be as agile, and especially flexible as we would like to be.

6.6.5 Primary Theme 5: Technology and Procurement

This primary theme placed a significant emphasis on the procurement process as well as technological advancements. This study analysed the impact that technology has had on procurement and offered suggestions for lowering the barriers that prevent technological advancements from being implemented in the public procurement process. In Primary theme 5, identified were three sub-themes and each primary subtheme had further sub-themes revealed from the study's analysis. The analysed and given verbatim remarks show unequivocally the key areas of concern. This topic is consistent with the study's "*Technology*" construct. The three basic sub-themes of Primary theme 5, as well as the sub-themes to Primary sub-themes 1, 2 and 3 are shown in Figure 5.10. This theme focused on technology and procurement as raised and presented by participants of the interviews. This theme is in line with the '*Technology*' construct of the study. Table 5.10, displays the three primary sub-themes of the primary theme five (Technology and Procurement) and the sub-themes to Primary sub-themes 1, 2 and 3.

Table 6.11: Theme Five – Technology and Procurement

| Sub-Research Objective | Main Theme | Primary Sub-Theme | Sub-Themes | Study Construct |
|--|--|--|---|-------------------|
| <i>Analyse the public procurement system performance of environmental and organisational contexts being used in the procurement systems of the HEIs.</i> | THEME 5: Technology and Public Procurement | 1. Influence of Technological Advancement in Public Procurement | <ul style="list-style-type: none"> • Environment Setting • Organisational Setting | TECHNOLOGY |
| / | | 2. Recommendations to Alleviate Barriers to Technological Implementations in the Public Procurement System | <ul style="list-style-type: none"> • Comprehensive System • Procurement Focus • Training and Development • Linkages • Structure | TECHNOLOGY |
| | | 3. Potential 4IR Technologies Integration into Procurement System at Institution | <ul style="list-style-type: none"> • Not Aware • AI for Procurement • Cloud Technology • Eliminate Errors • Fraud and Corruption | TECHNOLOGY |

Source: Compiled by Researcher from the Information Analysis of Nvivo – 2022.

The first main theme is supported by three distinct primary sub-themes. The Primary sub-themes 1, 2 and 3 have a total of two, five and five sub-themes, respectively. The findings of the investigation allowed for the identification of the key topic. The concepts and results that were mentioned by each participant are listed in Table 5.11.

Table 6.12: Theme Five – as per Participant

| Theme 5 Technology and Procurement | P.O A | P.O B | P.O C | P.O D | P.O E | P.O F | P.O G | P.O H | P.O I | P.O J | P.O K | P.O L | P.O M | P.O N | P.O. O | P.O P | P.O Q | P.O R | M 1 | M 2 | M 3 | M 4 | M 5 | M 6 | M 7 |
|---|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Primary Sub-Theme 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Sub-Themes</i> | | | | | | | | | | | | | | | | | | | | | | | | | |
| • Environment Setting | | | X | | | X | X | X | X | | | X | X | | | X | | | | X | X | X | | | |
| • Organisational Setting | X | | X | | X | X | X | X | X | | X | | | | X | | | | | X | X | X | | | |
| Primary Sub-Theme 2 | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Sub-Themes</i> | | | | | | | | | | | | | | | | | | | | | | | | | |
| • Comprehensive System | X | | | | X | | | | | X | | X | X | X | | | | X | X | X | X | X | | | |
| • Procurement Focus | X | | | | X | | | | | | | | | X | | | X | | X | X | | | | | |
| • Training and Development | | | | X | | X | | | | | | | | X | | | | | | | | | | | |
| • Linkages | | | | | | | | | | | X | | | | | | X | X | X | X | | | | | |
| • Structure | | | | | | | | | | | | | | | | | | | | | | X | | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|--|--|--|---|--|--|--|---|---|--|--|---|--|---|--|--|---|---|---|---|--|---|---|--|--|
| Primary Sub-Theme 3 | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Sub-Themes</i> | | | | | | | | | | | | | | | | | | | | | | | | | |
| • Not Aware | | | | | | | | X | | | | X | | | | | X | X | | X | | | X | | |
| • AI for Procurement | | | | X | | | | | | | | | | | | | | | X | X | | | | | |
| • Cloud Technology | | | | | | | | | | | | | | | | | | | | X | | | | | |
| • Eliminate Errors | | | | | | | | | X | | | | | X | | | | | | X | | | | | |
| • Fraud and Corruption | | | | | | | | | | | | | | | | | | | | | | X | | | |
| • Going Green | | | | | | | | | | | | | | | | | | | | | | | | | |

Source: Compiled by Researcher from the Information Analysis of Nvivo – 2022.

6.6.5.1.1 Sub-Themes:

a. Environment Setting

The impact of technical development on public procurement was initially investigated in an environmental context. The influence was seen favourably. For example, the use of technology can encourage paperless operations. Most institutions still use a lot of paper, which has negative effects on cost, storage, and productivity. Furthermore, Information can be made easily available and used for planning and decision-making. Data storage can be frictionless, and online file storage can be secure and convenient.

As per participants: *<Proc Officer G> the cost of having to have paper, having to print and having to scan. So in that way, I think the institution is saving a lot, in terms of paper for printing, even for printing documents. <Proc Manager 3> The only change will be now in terms of technology, where we are doing everything paperless, then in terms of our process, where we are sending emails like confirmation of orders electronically. And then also in terms uploading our requisitions, are done online. Ja, but then the adherence still - the base point still alive with our policies, where then it follows that similar logic as well, in terms of even approval as well, from manual approvals to online approval. <Proc Officer M> Well, the technological advancement that we have seen is, like I have said, from your paper environment to paperless. So that was quite innovative and quite a huge jump, and I think even with that change from the manual paper system, to what we are doing now. <Proc Officer M> with all the IT advancement it also helps you, or helps management to extract information, current and previous, and you can also use it for comparative purposes, for budgeting purposes, also for your cost centres; that will be more from the accounting side, but I am sure that is what they can extract and use for the data for budgeting for the next year, and give them a clearer picture how the institution is doing, where they can spend more money or what they can cut back on. <Proc Officer G> papers, there is a wear and tear of papers. But now when it is online, it is stored online, you cannot lose something that is stored online. So I would think that one has improved well. Even when you want to retrieve something, you just online, just download it. <Proc Officer H> There is more flexibility now. Work from home, actually we could not do before, so things that I can do from home. <Proc Officer L> It really does influence in our institution, if you can take it back to during the Covid time; before Covid, we used to know that*

all the documents must be signed manually, and then you can scan it back and send it wherever you want to send, but during the Covid, it showed us this, and the system that we have, it is really good, because everything, even now we do not feel like there is a need for us to come back to work physically because we have worked very great during the Covid time, everything on the system, in such a way even now we do not feel like we need to print anything. <Proc Officer P> we have been able to work online because of Covid and stuff, so we have managed to do that. And also with Zoom and all that, we have actually worked quite well. So in that way, you can actually work now off campus and you can have your meetings and talk to the suppliers. <Proc Officer C> because it is just online and things can be done within a day, rather than whereby you have to go physically requesting signatures, that is time-consuming. And people are – like for example, HODs, who are the final approvers, they can approve anywhere, they do not have to be actually at their desks to approve requisitions. <Proc Officer G> so we have not decreased in terms – but the setting, I think the technological advancement is very much good. I commend it because now everything is just easily accessible. The documents, you just go to the – even if maybe I need the HR policy maybe, I can just find on the portal. So now technology wise, advance is good, I think it is the way to go, we should be moving towards it. So as a university, it is a good initiative that we're moving towards that and doing away with paper. <Proc Manager 1> Okay, they do, and the thing is, one, your web service platforms, where there is the uploading of quotes and a whole host of things, and uploading of the policy, and uploading of policy rules within the systems. <Proc Officer F> Yes, so – and in terms of employee size, yes, with technology, we do not need more people, the procedures are now more clear, because during the old system, where even when it comes to the invoicing the invoice have to be signed, like physically signed, but with technology, we go away with that and we do – we manage to do - to approve online. The approval system was online, everything was done online. So even our system, the IT system, is improving. Every year we upgrade the system, to make things easier for us, for procurement. <Proc Officer G> you would have to go to a certain office to ask for them. But now because it is even on our university website. There is a section where the policies are put there, so can we can be able to go to portal and draw the documents there. I think the advancement was very good in terms of the accessibility of the policies, you know, because usually it was stored manually, now you have it online. I can download the procurement policy online and have it on my laptop, not to have to go and have a manual copy. <Proc Manager> and then it comes to the processes, if there is – ideally I can say we can do the order in 15 minutes, if everything goes correct.

Because I can send an email now, if the supplier understand and give me a quotation in the next five minutes, and then process the order, it goes to the approver, the approver with approve it. After that it will come back to me – I mean, come back to the procurement officer, or we will place an order, and the order will go to the supplier. The supplier, if the supplier is in Richards Bay also, in an hour he can deliver the product. <Proc Officer G> So now if the – even the movement, even the turnaround time is decreased because at some stage you can even – if I had to go to another office, where I can just send a thing via a technology, which is faster, you know. <Proc Officer C> so basically the technological system actually improves procedures, because it actually makes turnaround times actually faster, especially using the online system. Departments, end users do not have to be travelling documents to there for approvals and elsewhere, so basically they actually improve the turnaround time, because it is just online and things can be done within a day, rather than whereby if you have to go physically requesting signatures, that is time-consuming. <Proc Manager> so I think it was established that we needed a better ERP system, and that is – ja, so we are there now. Of course, once it is fully implemented – we go live, it is fully implemented, and going forward from there, like I was saying, you always want to see how you can better your systems, the way we operate, and what we have when this new system is live and running, and to see whether it is serving our needs, or whether we need to improve better or get – and then maybe look at obviously the processes that will now be in sync with this new ERP system, that could give us efficiencies and our desired results, let us put it that way. <Proc Manager 2> I think they can be incredibly powerful in ensuring compliance and in moving – and even the number of staff and infrastructure that you need could be reduced if you have got strong technology. <Proc Officer I> I can say it influences in a good way because everyone is able to track down the status and processes of their request online. You do not have to wait to hear from me where everything is standing at, you can obviously access everything online and see where everything is standing at that particular time.

Technology increased flexibility and accessibility by facilitating easier access and ease of use. People could work remotely and access the system from nearly anywhere since everything was online. This might facilitate getting HOD approvals. This was beneficial during COVID-19, when people had no choice but to work from home. The process is easier to use thanks to technology, which allows for seamless uploading of papers like quotes to systems and access to internet portals for documents. Overall, technology made life simpler by allowing everything

to be done online rather than requiring physical contact with people to obtain permissions and physical evidence.

Significant improvements were made in efficiency and speed. Online approval of orders could be completed in a matter of minutes. Each participant in the process can automate and facilitate their part online. As a result, procurement is expedited and turnaround time is reduced. Efficiency helps the institution deliver its services more effectively. People are no longer subjected to long waiting times for their goods or services.

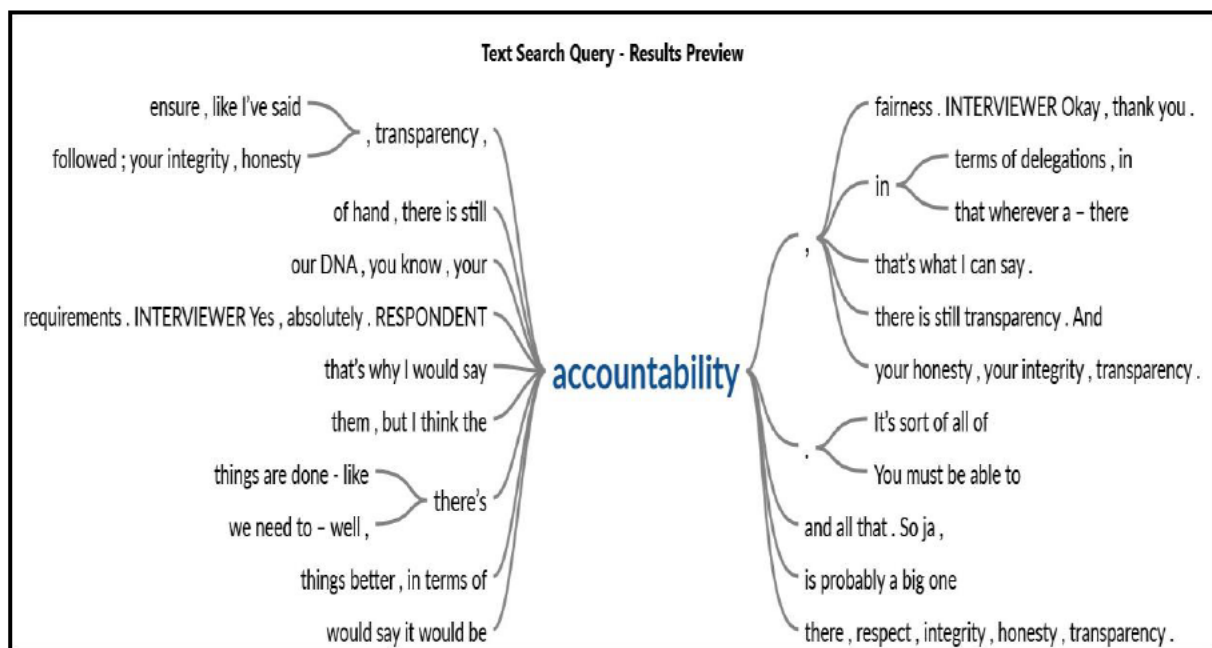
Technology also has a favourable impact on the capacity to track compliance. It made it simpler to follow rules and procedures because it allowed for online measurement. Processes may be followed and observed, making it possible to always know their status at any given time. The environmental facet of the TOE theory examines the components that make up the structure of the sector, as well as the environmental service providers and the legislation that govern the environment (Baker 2012: p. 235). According to Tornatzky et al. (1990), mature and declining sectors are less likely to acquire new technology, while organisations that are a part of quickly rising industries are more likely to adopt technology swiftly. In order to maximise output and minimise expenditures, rapidly expanding enterprises often embrace new technologies. The regulators decide whether or not an organisation is capable of using a certain technology in order to satisfy the requirements (Angeles, 2014).

b. Organisational Setting

This subtheme looked at how technology development has affected public procurement in a work context. Additionally, the influence was perceived positively. Efficiency and process improvement were cited as favourable influences. Online signing and approval improve organisational efficiency, building on earlier themes. One institution was planning to install ERP soon, and it would be tailored to all procurement requirements. For the purpose of obtaining bids, this will be connected to suppliers, and other stakeholders will also be connected. Processes will be streamlined, and manual labour will be reduced. Work became more efficient thanks to technology, especially as approval levels rose and the procedure became more cumbersome. Because of effective control and monitoring, workflows might be more efficiently designed. All unfinished business could be monitored.

At the organisational level, compliance and accountability were improved in a manner similar to environment setting. Transparency is improved and it is possible to track every user's action on the system. It makes individuals answerable for their deeds. Additionally, it enables one to determine just where and by whom the process is being slowed down. Then, this can be followed up on. At the moment, there has to be greater improvement in process and policy compliance. Therefore, new systems might aim to encourage compliance from the top down and reduce fraud and corruption. The organisation context refers to describing the factors that determine an organisation, such as its size, the formalisation, centralisation, and complexity of its management structure, as well as its channels of communication and decision-making (Angeles, 2014). Top executives support organisational changes and can obstruct or promote technological adoption (Angeles, 2014). The breadth and scale of an organisation are significant factors that affect how quickly technology is adopted (Rogers 1995; Tornatzky et al., 1990).

Figure 6.17: Tree Map of the Organisational Setting



Source: Compiled by Researcher from the Information Analysis of Nvivo – 2022.

Technology has made communication and work more flexible. Staff will be granted more access rights, and leadership can make this decision. Which employees should have access and at what level can be decided by the leadership. This will increase productivity because processes will not always be delayed by others if they are unavailable or busy. Suppliers will also be able to upload their documentation using the system.

Proc Officer F> So now with the advancement of the technology, like I said in the previous, that we have the approval stages, the delegation of authority is now set on our computer or on our system, so it is no longer our responsibility as a supply chain to see the physical signatures, who signed here, who signed here, who signed here. Now they do things – the end users, they do things online. Automatically our system, once the manager approve, if it need the second approval, automatically it goes there, so I can say it just centralised everything in one system, and make everything be smarter, smoother and more – even the chain now is moving forward easily. <Proc Manager I> so I will say better work flows, in terms of what is pending, what is outstanding, what has been on the system for a long time and so forth? But because there is a hybrid model, there are a lot of things that are done outside the system. <Proc Officer H> So far these improved with the system and the technology that they've introduced. It's working for us so far. No, I do not see any short fallings in it, it is really working for us. There is a major influence that now things are done - like there is accountability, that is what I can say. Now you cannot say, I do not know who did what, when. The system will tell you, you logged in at this time, you are the one who did this and that. So that is a big one, because now people can account for transactions that they did, you see? You cannot be blaming someone else anymore. <Proc Officer O> so if things are automated, that possibility is reduced. I am not saying it is taken away, it is reduced, because it will remain there. You know, we are people, we can work around the system, but at least it is reduced, to say if I source quotations I am not responsible – if I receive 10 quotations from this service provider, I am not responsible on how the system came about selecting these service providers. But now if it is manual, I am responsible on how did I arrive at getting these service providers, you know?

Notably, working remotely and flexibly can continue undisturbed. Virtual meetings can be conducted easily and swiftly. Even when it comes to problem resolution, there is no need for physical activity because it can be done online. Of importance, communication and information distribution are made easier by technology. This increases the procedures' transparency for all employees and stakeholders.

Participants expressed the following: <Proc Manager 3> *Technological advancements, I can say in a way it has reduced the turnaround time, I can say, as I was making an example, saying previously we used to sign all documents on a manual paper or – ja, manually, on a manual document. And then that will take time, because even with the where you had to maybe – with us having like five campuses, and then you had to rely on postages, where documents had to be posted from one end to another end. So with technology now, we are doing everything online, the turnaround time has reduced drastically.* <Proc Officer K> *Now it is easier to just send things through, there are electronic signatures and that, and you do not have to wait for days. And if they can do it, just sign off documents for you wherever they are, whether they are around or not, you do not have to wait with a physical file. So it is – I do not know, the environment has improved all in all, let me put it that way, in terms of operational processes, yes, the processes have improved, yes, like I have mentioned. I think I have covered all.* <Proc Officer E> *with now, with the online, a requisition, if everyone is in place, you are talking about your originator capturing a requisition. From there it would go to your buyer, procurement officer. They would ensure that all the procurement steps are there. From there it goes to your line manager for approval, and then – no, what did I mix up? From buyer it goes to budget officer. From budget officer, it will go to the approver. And that can all be done – we have seen it over here for emergency stuff that needed to be processed, it can be done within 15 minutes. So what I – the new online system, if everyone is at their stations and knows what is coming, it is a big time-saving.* <Proc Manager 1> *purely on the basis of this new ERP system that we have procured. So I think management found the need, firstly, to get a new ERP system in place, because they realised the one that we've got, the existing one, was not serving our needs. And number two, then in line with that, they have now restructured the procurement department, our structure, to tie in with this new ERP system, so that management believes we can then serve the interest of our university better, in terms of procurement.* <Proc Officer C> *Innovative processes, they are actually looking at implementing a new ERP system, which will allow procurement to actually be able to source quotations directly from suppliers.*

And they can also – we do not have to print out orders and then emailing back to suppliers, the system will actually allow a procurement officer if a supplier has been selected, you place the order on the system, and the email goes directly to the supplier. I think that is actually a better way of going green as well. <Proc Manager 2> I do not know. Leadership from the top, like I said, I do not think it is – I think there could, I have seen – and I believe that there are systems out there that could really help us to manage and, you know, to ensure that sort of either compliance in the management, the reporting, all of it is done so much better. I'm not sure that we have got that solution though. But I really believe it could substantially assist in making sure that there is better leadership, there is better – you know, especially in terms of compliance and fraud and all kinds of things, it could manage it so well. But I do not know that we have got it right here. <Proc Officer A> So now, you might find that my colleague, that we're doing the very same thing with, is advanced on some certain thing, because they have dealt with that, and obviously they were given access to that. But because I have not dealt with the same transaction as the same – or as the next person, I do not know what to do with that information, or I do not know how to do that, that needs to be done on that technological aspect, because I have not been put up front, or that has not been transparent, to say for such and such things, this is how we do things. <Proc Officer E> Well, as I said, we are waiting for a new – I cannot remember what is the name of this new program that we are supposed to be getting that they spoke of, where it is going to be much easier for the procurement officers, where everything's – suppliers are going to have access to it, where they would update their certificates, their BEE, their tax certificates. <Proc Officer G> so I think that improves a lot, because now a person does not need to be physically here, in order to sign things and approve. So I think this fourth industrial helps us in terms of efficiency and effectiveness of the procurement system. I think so, that is my opinion there. <Proc Officer I> I can say it has influenced it in a good way, because I do not have to move from my office to another office in order to get help. I can always do everything where I'm sitting, and it is able to reach the other part. <Proc Officer K> so like the filing that I have mentioned, Microsoft Teams, it is only recently that we are using it. And the meetings as well, the meetings used to be live meetings, where you would get a boardroom or you would get a – ja, you would get a hall or a venue somewhere and you would invite bidders there. Now you find that we have moved to Zoom, it is virtual and it is quick, easy, chop, chop and convenient. So it is those small things that are coming through now. <Proc Officer G> you know what, even our communication now, we have got university communication, where they send to all staff. It is very much good, because you can get

notifications, they are much more advanced from anything between from HR communication, the processes.

6.6.5.2 Primary Sub-Theme 2: Recommendations to Alleviate Barriers to Technological Implementations in the Public Procurement System

This main subtheme provided essential advice to get around obstacles in the public procurement system's use of technology.

6.6.5.2.1 Sub-Themes:

- Comprehensive System

It was strongly suggested that the system be expanded upon. Such a technology would automate the entire procurement process, from the beginning to the end. In terms of procurement, there has to be a fully automated system from beginning to end. There should not be any manual processes included. It must be possible to automatically upload and store documents. It ought to accommodate all kinds of purchases, including those for research. It must also be connected to all necessary stakeholders in order to promote fairness and openness. The database needs to be adaptable and simple to update. Detailed rejections required notification. As a result, a place where the procurement officer can insert remarks outlining the reasons for rejection was required. Accordingly, this can tell the end-user. Of importance, cost centres and procurement for research should also be part of the system. At the moment, research-related purchases are made separately, and the majority of them still go through a manual process. Another important point to note is that the system needs sophisticated access and security controls. High-level identity management is necessary. Fraud and purposeful and unintentional security breaches will be lessened as a result. Also, of importance, the system has to be simplified in order to make the approval process simpler and faster. There should not be too many screens; instead, there should be one thorough screen where approvals can be made. Delays and confusion result from having too many screens. Also, the system's speed is very important. The procurement procedure will be hampered by a sluggish system. Because of this, turnaround time is based on system speed. To identify potential conflicts of interest caused by suppliers using two accounts or by employees who are themselves suppliers, the system must be "intelligent."

As per participants: <Proc Manager 4> it can also be done online, which will ensure that there is fairness and transparency. So everything, what was done, how the process was evaluated, who evaluated, who authorised what, if it can be – and there will also be that maintenance of records. You can be able to have the information whenever we need the information because what is currently happening is that the information is done manually, and then it is later uploaded in the system when the orders are being issued. But it is not really all the information that is being uploaded, because obviously it is done manually, it is not physically generated by the system. So if we could have an automated system from the beginning, up to the end, without doing anything manually, I would say we would be at a level where we're very advanced technologically. There are institutions that have automated processes, from the advertising of the process, up to the end. So those kinds of systems would possible advance us, although they do come with their challenges but in terms records, we would have the records available on the system. <Proc Officer M> so if these things are, I do not know, looked at in a different light, I think they obviously can be ...Or you are waiting for an approval, for example, I just said now, justification of deviation, and it sometimes with people's workload gets lost in the system, and the response is not quick enough, you do have an issue. Maybe those things should also be online, instead of uploading documents – instead of uploading documents, the documents should be part of that, where it goes in, and if you have to approve that order, you approve the document, together with it, so there is no delay in the process. That is my viewpoint on there. <Proc Manager 1> Requisitions have to be submitted electronically. That is the one big thing. In fact, what I did not tell you, and I should have told you at the outset, for research, a fair amount of our research consensus, because of the way they are structured, the cost centres, and because of who the approvers are, these requisitions come through manually, they cannot come through electronically. So again, if we are going with the new ERP system, unfortunately those cost centres will some come through manually. <Proc Officer J> The system – okay, IT should reject a requisition if there is no funds in a particular cost centre, immediately once – ja, it should Pruco reject the requisition. The iEnabler or ITS should be able to reject a requisition if a wrong GLA is being used for a particular item, like when you are buying a laptop and you use the stationary code, the system should be able to reject that requisition before it can even reach the buyer. <Proc Officer A> And on the other, our system is made in a way that, when you are sending me a requisition and I see that it is not compliant, obviously I will reject it. However, you will only see the email that I have rejected it, meaning the system – you know, because it was going to be easier if the system had some column

somewhere to say, 'I am rejecting this req because of one, two and three.', you know? Meaning, after rejecting the requisition, I still have to go back to the email and send you why did I reject your requisition. <Proc Manager 2> So ja, recommendation would be, one of it is all these cost centres, research cost centres that cannot come through electronically for whatever reason, between the research finance department and our finance department and the IT department, they need to look at how they can overcome this challenge for us, whereby they must sort out these cost centres, the approvals on the new ERP system, such that these requisitions also will then be able to come to us. So that is the one, all right. That is the one thing. <Proc Manager 3> and then another recommendation, in terms of security when you are assigning or approving, maybe if I am not sure how like similar, where you use your fingerprints, and then just to sign or approve, if we can have something like that, if we are approving or – because we are approving most of our stuff online. And then if somebody like gets like your user ID and your pin number, unfortunately the can approve anything for you. But then if you are using like biometrics and signature, then ja, you only can approve. <Proc Officer R> I think a more streamlined system, so we do not have this back and forth of approvals here and there. And then also with the actual system itself, to process one order, you are going from screen to screen to screen. It is not as simple as everything is on one screen, you view it and you click there and that is done or approved or disapproved, or whatever it is. There are too many different screens that you have to navigate to get one order done. Yeah, that is with all options. If you want to check a simple thing on an order, you are going to another screen. So you come out of what you are doing and you go somewhere else. If you are checking – yes again, there is just too many screens and options you have to go through to work through one order or one request. <Proc Officer M> Where they alleviate these problems, how they can fast track it, and how it is going to benefit the institution as a whole, as against, you know, sometimes hanging or lagging behind. Obviously, like I said, want quick turnaround time. It is like online, but the thing is, once you start going sort of not so online, where you have got other people to approve, other people to look at justification forms or look at deviation forms, and then that drags it down a bit. <Proc Officer L> And another thing, I would like them to have an intelligent system for the declaration of interest, so that it would be easier, whatever company that is punched on our system or just decide to quote with us, it would be easier for the intelligent to system to pick that are there any match in terms of the company directors or what. So that would be best for us.

- Procurement Focus

The procurement process must be the system's primary focus. Access privileges for procurement employees should be regularly checked and updated. This stops personnel from having improper access and resulting in additional delays. Sometimes a staff member might not be at their machine for whatever reason, which can cause the entire procedure to be delayed. Additionally, the current system was incapable of sending alerts if any documents were overdue.

As per participants: *<Proc Officer A> because sometimes you find that – okay, there are things that obviously need to be approved by my line manager, by only him, because he has the values and all of the stuff. But for the things like changing the supplier name, changing the value, because I am allowed to do that, why do not I have access to that? Like, getting the supplier into the database, we just need access. But now it delays me, or it is time-consuming for me to close this down and open the email to go and say please, I rejected one and two, or there is outstanding documents, this and that and that. I should be able to do that on the very same system, within the same requisition that I am talking about, you know? <Proc Officer E> I would have a system that not only the procurement – obviously the procurement staff would only have certain access to process requisitions, but have a system where staff could log on and see exactly which suppliers are on the database. Yeah, of course currently, they are just sent a spreadsheet, and that spreadsheet is updated like once a year. So over there I would say they should have access to see live which suppliers have been added on, to have all of the documentation from companies being live and current documentation.<Proc Manager 1> For me, I will say if our system, we are supposed to have something like an app, where the supplier will download the app for the university. And then for procurement, where – because I think the app is much faster if you have the app, because it will pop up the message, that wait for emails. But if they have the app, they are active on the app. And then the app will show them everything that we are required for the supplier point – from the university, if there is a need. Let us say I need 10 laptops. That supplier ... I can give you laptop. Like sort of a platform where the supplier and the university, they can engage, selling and buying platform. I do not know, I saw the website called Fever, where anyone who is selling things, they are there. <Proc Manager 1> Separate solutions and go for a finance-related ERP. So meaning have your own – separate it, do not say, I have got IT, and IT can also do procurement, where you are saying*

I am going to customise PeopleSoft to do my procurement, because all of these things, procurement and the educational systems are not lined at all. <Proc Manager 2> so yes, I would recommend that we actually get a new ERP system that is more flexible, that can accommodate 40 000 students. I am not sure that IT does that well. That does not need a lot of these slap-on soft - you know, we have something called local software, which they have got to then tap into our ERP system to sort of customise it a little bit more for our operations, and I do not think a system should do that. I think the system that we buy should have the flexibility built in, so that we can do that type of thing naturally, without having to pay to have these bandages or ... <Proc Officer Q> so this IT system is not a good system. So if we had to change to a more – like an ERP system, like what I’ve been talking about, SAP, because I’ve used SAP. I have used SAP before, so I know the type of system it is. If we had to move to a system like SAP, it will be so much better for the institution, we will have an integrated process, everything will be streamlined. Like everything will be in one central point. People will be more accountable for their actions, we will be able to trace things, and we will be able to track how money is used. That system is such a nice system, compared to this system. My recommendation would be to maybe work towards getting a better system. <Proc Officer N> they need all that. And we do not have a database for suppliers at the moment. So there are a lot of things there that I say, backup system, we need a backup system where our documents can be safe. <Proc Officer Q> This system that we are using does not give us an option to search suppliers according to the commodities or the services that they provide. So we need to just pull it out of our heads to say, okay, this company can do catering, this company can do this and this company can do that. If we had a proper system in place that can allow us to say, okay, if I put in search criteria for, let us say catering then, right, that it will pull up all the companies on our system – on the whole system, that can provide us with that service. That is the type of frustrations I have with this system, and that is why I am saying, as much as I would love to adapt and I would love things to change, it cannot change if we still have the same old system in place. <Proc Manager 2> The other area we have what we call once-off suppliers, where from time to time you buy from a supplier, you know, maybe in your lifetime or once in or two or three years possibly, and then it is not necessary to bring them onto the database. For various reasons, you might buy from once-off suppliers. Another example, I will give you, and I quote this example all the time, we have some departments doing research in rural areas. I mean, we have this department running courses in Ladysmith and things like that. And you cannot tell them to use a catering suppliers from our database, because they are all basically

KZN bound. It does not make sense. So you will get the catering from a company out there. Now it does make sense to bring that supplier, that company on our database, because you will never deal with them again. So what we call, those are once-off suppliers. Now those things are done manually, where departments are now – because of that, our ERP system cannot handle it. And I am not sure on the new ERP system, like I say, we still in the phase of meeting with them and discussing the various aspects.

This required revision. With the introduction of large-scale systems and contemporary technologies, a primary procurement system centred on SAP and ERP should be employed. Such a system primarily focuses on the complete procurement process and includes the appropriate controls and safety precautions. A high volume of procurement that is appropriate for the higher education environment can be accommodated by such a system. Additionally, it can be said that in the modern period, Applications served as a standard platform for interaction and process. The new secure and adaptable method of conducting business was via apps. For instance, even banks employed applications to connect with their clients. In order to maximise the flexibility, speed, and versatility of the procurement process, procurement apps should become standard. Furthermore, to support a large number of suppliers, the supplier database needs to be fully redesigned. Additionally, it must be able to organise suppliers in accordance with requirements, allow suppliers to upload documentation, and guarantee that all supplier requirements are met.

- Training and Development

Technology is only as good as its users, so staff development and training on systems are essential. Staff members must be informed about technology and have access to it. The staff frequently is not informed of technical advancements that affect the system they work in. Meetings and workshops can be used for formal communication so that staff members can offer suggestions and pose questions. In order for employees to adopt technology, a sound change management strategy must be put in place. Staff should not be forced to use technology as this may cause resistance. Consequently, an organised approach to change management can be very helpful. The importance of ongoing employee training should never be understated and should be incorporated into the technology implementation culture.

As per participants: <Proc Officer F> But now after the Court judges, they said no, the BEE system, no – they took away the BEE system, now everyone have a chance. But you only find that some people in public procurement, they are not aware of that, they still want to enforce the BEE system, or while actually it is no longer a required standard for the public procurement system. So in that what I am trying to say, do the proper training for staff to be aware or to get used to the technology. Encourage staff to follow whatever that is happening around the world. That will also come back and affect their day-to-day work. I think the third one, there must be proper communication. Yes, we communicate through phones, but maybe there must be proper communication when it comes to public procurement systems. Why I am saying that, because you will find that, people, they can just put their requisition, but they do not communicate whether this is the urgent or it is what. And you have to ask them, do you have a quote for this? Must I do the quotation? Is this a tender or is this a normal process? <Proc Officer N> like as I said, barriers, if I can use the term, we get bullied over here. We get bullied at the moment, with saying, you know what, I want. They just carry on. There is lack of communication as well. <Proc Officer D> Proper change management. You have people who have been doing things in a particular way for a particularly long time, so whenever you are going to introduce that change, naturally people are resistant to change, it is comfortable doing the things how you have always sort of done them, and I do not think higher institutions are necessarily dynamic or robust, in the sense that it forces you or drives you towards doing things differently. You cannot be content with doing something the same way that you were doing it last year. I think higher institutions are sort of stuck in the, if it is not broken, do not fix it sort of mindset. <Proc Officer F> Maybe I can ask the management to do proper training for Staff. <Proc Officer N> and the other thing is more training and regular training, regular workshops, all those things. I mean, when I sit and I do orders and people are going to workshops here at procurement, we have not been for one workshop, for one training session. That is my opinion.

- Linkages

System links are crucial from a technological standpoint. The system needs to be connected to all departments involved in procurement. People were now operating in silos and the systems were not integrated. The entire procurement process can therefore be made more efficient and transparent by using an integrated and linked system. To all stakeholders, including suppliers, automatic approval routing should be implemented. The database that contains current supplier

information might be used for this. Instead of manual notifications, this will hasten the procurement process. For suppliers to access and upload their certifications and supporting documentation, the system must be flexible.

As per participants: *<Proc Officer K> There is not a system that links all the departments and the institution holistically, that links to the procurement, so that procurement can support the departments better. There is nothing like that. You know – yes. So if there can be a system like that, that is fully fledged, that can be shared commonly by all the stakeholders in the institution, and that will help the procurement function or the procurement environment, then yes, it would be much better. It is for us to find a – like invest in a good system that would support – that would link all the departments. Like I have mentioned, a system like SAP, whereby even the human resource department can now use it, and it is understood because it has got similar features and similar everything. And it links to the stores, it links to procurement, it links to all the – if you can have systems like those in place, you can invest in systems like those, that include everything. We know that our institution uses this system and all the departments; finance is able to use it, procurement, human resources and all this, where everything is kept in one system and it is interlinked, your process, and there are different fields and different features to that system, that will cover all the departments and that will communicate in one – I do not know, technological understanding. <Proc Officer Q> So if we had something like that, we would be able to be more in line with what people are doing in the world. Now we are using this IT system which is not very fun. It is not really a cool system. But from a procurement point of view, I feel like if we had an integrated system, it will open up doors for so much to happen. We will be able to put suppliers – we will be able to meet the requirements of the constitution even more, because we will be able to – from the commodities that we are ordering, we will be able to maybe – what word am I looking for? We will be able to maybe set suppliers according to their commodities, we can put them on a rotation basis. You know, like in terms of BEE, all of that, we could do so much if the system was better. <Proc Officer R> The approval system. Again, having to – this request routing to different people, and then routing back to you, and then you sending it back for us – what is the other thing? If orders were automatically routed to suppliers, once an order number is issued. At the moment, the order has to be printed, signed and then scanned, and then sent to a supplier. When we were working remotely during Covid, it had to be printed to screen, and then the correct address had to be typed out and then emailed to the supplier. So all of that takes a lot of time, it is not as simple*

as processing and it is gone to the supplier. We should have supplier email addresses loaded onto the system, so as soon as you choose that supplier, the request can route to them. <Proc Manager 2> With the new ERP system we made a recommendation, and it looks like it is going to come, whereby the system will do it; the moment you click approved, the buy says, okay, I am happy, after all the relevant approvals and whatever, compliance checked, the moment it says click, I am happy, place your order. The order must go straight to the supplier, the system must send it. And I think that is coming, apparently, that is going to come as well in our new ERP system. <Proc Manager 1> Again, then the recommendation, like I just spoke about, your BEE certificates, tax clearance certificates, must come through – you know, the ERP system, I will be able to run reports and to link us easily to – link the supplier system to our system, where the suppliers then will be able to upload the BEE certificates and tax certificates onto our system via a link or whatever, so that it does not have to be scanned to us and we upload it, you know, it must be done digitally. We are looking at those options. So those are the recommendations we are obviously making as well, you know?

- Structure

It was crucial to have a suitable institutional structure in place in order for technology to be deployed efficiently and effectively. Technology can only be as effective as the system that controls it. Therefore, a procurement structure from the top down needed to be established before technology could be applied in line with the frameworks. Then, systems might be comprehensive, networked, and easily integrated.

As per participant: *<Proc Manager 4> I think the structure, if you look at the procurement structure, it needs to support the institution, and it also support the policies that are in place. I think our procurement structure is very thin. I think that also whether we have a centralised or decentralised procurement process, we still need to have a proper structure there. We still do not have a proper structure, even in terms of the reporting structure, it is really not clear. We have central procurement, which is where we are, and then we have procurements that are at colleges, but the procurement at colleges does not really report to central procurement. There is direct reporting from colleges up to CFO.*

6.6.5.3 Primary Sub-Theme 3: Potential 4IR Technologies Integration into Procurement System at Institution

Under this primary subtheme, the question that was posed was whether or not respondents were aware of the possible impact that 4IR technology could have or has on procurement.

6.6.5.3.1 Sub-Themes

- Not Aware

A significant number of respondents were unaware of 4IR, which suggested that the 4IR technology was not currently being utilised and is an area for which consideration should be given in the future.

As per participants: <Proc Officer H> *I am not really that clued up with the fourth industrial revolution. All I know about that is that the Internet of everything, I just know it is the Internet part. You know, the internet is needed on a daily basis, so just by having backups, that we do not have problems with the network and all that stuff. But all these other things, artificial intelligence and all those things, those robots and stuff, I just think those robots are just coming to take all ours.* <Proc Manager 2> *they are trying to look at things like – I mean, we know cloud right now. We are sort of tapping into it, but I do not know that there's any artificial intelligence and things like your cloud computing. I have not seen any of that. And you know, this is when I keep saying to you, I feel a little bit like the system is bogging us down and keeping us sort of anchored in the operational side of things, instead of allowing people to get the data they need, in order to make the decisions that they require, in order to drive the strategies. I do not think they have enough time to do it, because their system is not helping them to do it.* <Proc Manager 5> *what is 4IR, may I ask? Ja, I did not go. I have never been, so I do not think – I do know that there was lots of talk about artificial intelligence, but I was not at the workshop, so I cannot really tell you.* <Proc Officer J> *I do not know how the processes with 4IR, but - okay, our relationship with central is good, but we do not communicate much, so that is why I think maybe there is a breakdown of everything that is happening currently.* <Proc Officer Q> *if I am being totally honest with you, I do not actually know much about that. Cloud computing. What is IOT?*

- AI for Procurement

A number of the participants indicated that they wished there was a greater use of artificial intelligence in the procurement process. This can include an access system based on biometrics, a system that can predict what kind of procurement will be required for which seasons based on historical data, and intelligent databases that can verify, sort, and arrange quotations based on the supplier and provide reports on these capabilities.

As per participants, the following understandings were discussed for AI in procurement: <Proc Manager 2> *And when it comes to artificial intelligence, we are not there yet, but I would like to have something that at the university, where if I am entering the main gate at the university – because I saw the other companies advertising it, I think it was Fidelity, where they can scan your car, match with your face, and then I can enter into the institution. If the students, they are class writing exams, there is no need for them – just scan their face or do biometrics, match all those things. Because now the carrying of student card up and down, I think it is an old system. In the fourth industrial revolution there is no need for us to carry anything. We are supposed to carry ourselves. And then that is what I think. When it comes to procurement, I think it is a matter of having something, like I said at the beginning, to have something that – like that platform I said at the beginning, there is some sort of an app system, where everything is saved there, if I can require something, I can just go and take it. That is what I understand.* <Proc Manager 1> *you know, if you look at 4IR, right, and the use of AI, it is going to be a bit of a challenge. And if you look at 4IR, you are looking at the auto-generation of purchase orders and a whole host of things. The challenge is that resources are limited, so there is some decision-making that will need to be done. So I do not think AI as part of the technological advancement, can help, because, I mean, right now, I am going to give you an example. We have got a farm, which we procure seeds and we procure – okay, it can be seeds, it can be crops and all of that. And that gets driven by weather. And the other part that I would say it has actually been driven by weather – so it is being driven by weather. Now if it rains, the crop scientists are going to rush to finance. And the reason why the crop scientists will rush to finances, is because it raining, so I need to plant tomorrow.* <Proc Officer D> *Maybe if there would be sort of a system where it is built such that you have the suppliers on the database, and when the format in which they quotes is set such that they just sort of just build things in, when they then return their quotations, the system should be able to sort of do the checks, sort*

of pulling out that, look, on the system we know that this is their BEE level, according to the system we can pick up that their SARS is up to date. I think, ja, maybe something like that could actually be possible in the future, but I think it would be heavily dependent on, one, the algorithms that would be used, but also the structure and format when suppliers are actually feeding the information into the system. But ja, maybe something like that would be possible in the near future.

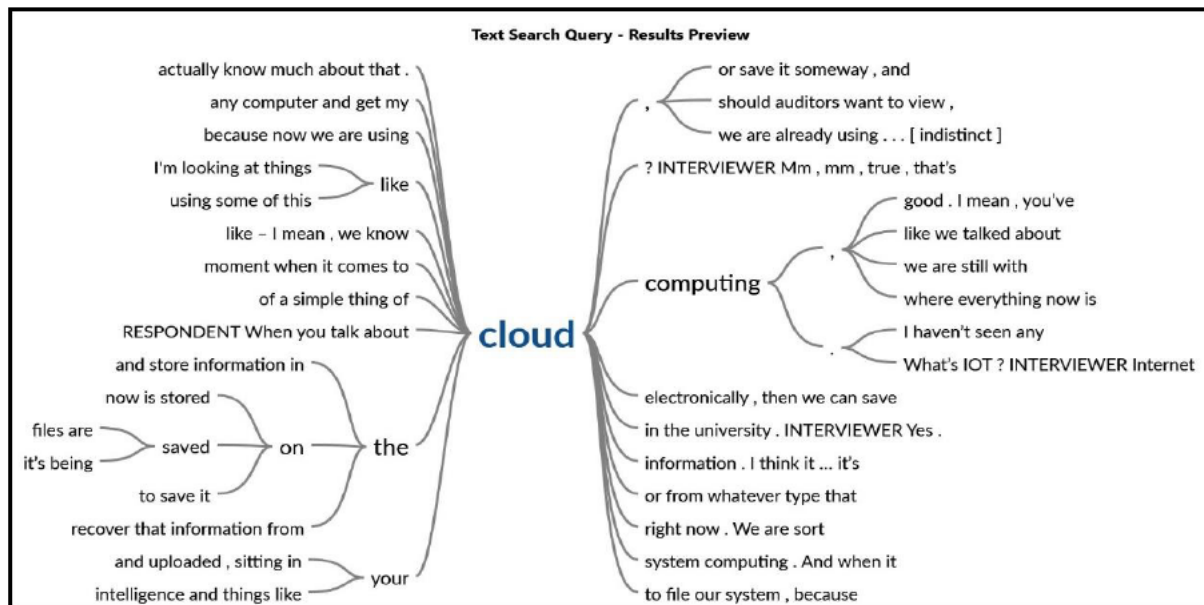
- Cloud Technology

It was proposed that cloud technology, which many people were already familiar with, be capitalised on in order to have infinite storage and access to data. Additionally, there would be no loss of data. This has the potential to save the organisation a significant amount of money as well as resources.

As per participants: <Proc Manager 2> *I do not know whether – I think, because now we are using cloud to file our system, because what I can say, if this laptop is gone, but our files are saved on the cloud in the university. I can log onto any computer and get my cloud information. I think it is what we have at the moment when it comes to cloud system computing.* <Proc Officer I> *I think this is a good technology advancement, because I know that if I lose my laptop or something, I am not losing all of the data that I had on that laptop. The data can be recovered at any point once I have maybe recovered that laptop, or if I have the new one, I can recover that information from the cloud or from whatever type that we are using at that time.* <Proc Manager 4> *But if I am looking at things like cloud computing, like we talked about information that is not available when it is needed, like contracts, performance, records of performance, we do not really have those. If we could have things done electronically, we could have all the paperwork that we need electronically. Also, there is the issue of space. When we do things manually, we have to keep records manually. We need to have a store room where we archive documents, that is really a challenge. So if we could do away with paper and store information in the cloud electronically, then we can save space for other things.* <Proc Officer N> *Like as I said now, we need something like to save it on the cloud, or save it someway, and the university needs to do something. And then if my laptop gets stolen, I can retrieve all my information. Last year in October my laptop got stolen; I lost all my information. Thank God that I had it saved on a hard drive. So there is something – we need a backup or something.*

For example, all our filing is done manually, there is no electronic filing. If I need to pull up a tender now, I must go into the archives and look for a box and – there is nothing as such.

Figure 6.18 Word Tree – Cloud Technology Views by Participants



Source: Compiled by Researcher from the Information Analysis of Nvivo – 2022.

- Eliminate Errors

In addition to this, there must be a smart system for locating flaws in information and documentation and making the necessary corrections.

As per participant: <Proc Manager 4> *I think also technology does eliminate human error. If we could have a process where we just feed information to the system, and then the system automatically works out the calculations or automatically picks up the relevant supplier, then human error can be eliminated in that case.*

- Fraud and Corruption

Because the computer will be conducting the majority of the processing work and there will be minimal participation from humans, the 4IR systems can prevent fraud. As per participant: *<Proc Officer C> So basically if we could have better systems that we could actually utilise without having to use a lot of end users getting quotes themselves. That we are also minimising collusion, we are minimising fraud. And if we are dealing directly with suppliers, if our system were to be dealing directly with suppliers, that we know that we are getting quotations directly from suppliers, and orders are placed directly with suppliers, and then there is less human intervention, which would improve in terms of being less fraudulent activities that are taking place.*

- Going Green

As we enter a new era of environmentally responsible practices, the 4IR has the potential to guarantee a completely paperless world, which will cut costs and promote sustainability, hence lowering the need for carbon taxes and helping to preserve the natural environment. Approaches that are focused on a mission, such as green public procurement, are becoming more popular as a means for governments to address modern difficulties in the area of sustainability (Rainville, 2022: p. 8591).

As participants: *<Proc Manager 2> and then I am looking where we do not even have one paper in my office. On my desk there is not even one paper when it comes to procurement. There is no reason for me to have paper, everything just clicking a button. If I click four milk, and then you say, no, this is the price, it goes straight to the suppliers. And when the supplier is available, they come back to me, and then I say, okay, approved. It goes back to the system, to say, okay, it is gone back to the suppliers, to tell them to deliver. And once it is delivered and I received straight to creditors, and the payment happens immediately to the supplier. I am looking at all those kinds of – when it comes to the fourth industrial revolution. That is what I am looking to. <Proc Officer B> where you do not print, you do not start making it worse for the environment. You do not want to use more ink. Because all those manufacturing; printing, manufacturing paper and manufacturing inks and all that kind of stuff, is detrimental to the environment. Because you know, you are cutting down the trees to make the paper. And then*

the process to manufacture, then the waste. And same with the ink, you know, and other things, and the other – whatever goes with it. So if you are looking at 4IR kind of systems in place, I think the auditors and the system should allow for a lot more online processes, whereas order notes can be sent online, without it even coming out of a printer. So ja, that is – and you know, look at Teams, what it has done now. We have this functionality, you can be anywhere in the world and do this interview with me, you do not have to spend your petrol and also make it worse for the environment to come and see me. So all this ties in. I think procurement, part of our responsibility is going green. We should be...we should be telling our users sometimes, let us go this route or that route, where it will help the environment. So instead of printing 50 pages, why not we keep it, it is being saved on the cloud.

6.7 NOVEL RESEARCH CONTRIBUTION

The Zondo Commission has revealed instances in which procurement procedures were used in order to circumvent the competitive bidding process, resulting in the allocation of contracts to service providers that did not provide value for money (Zondo Commission, 2022). Instances of misuse were thoroughly documented throughout each phase of the procurement cycle, shedding light on inherent vulnerabilities and inadequacies within the existing statutory framework. Although there are inherent hazards associated with a centralised procurement system, the excessive decentralisation of procurement procedures has rendered the system vulnerable to exploitation by corrupt public officials, as highlighted by the Zondo Commission in 2022. Given the comprehensive disclosure of the complexities of the state capture project and the subsequent revelation of institutional vulnerabilities, it is imperative to prioritise the reformation of South Africa's public procurement system.

This research provides an appropriate and up-to-date addition to the current body of knowledge that is centred on public procurement in the context of South Africa, paying particular and in-depth attention to higher education institutions (HEIs). This study will make an original and innovative contribution of how HEIs and the government may adapt and innovate their public procurement systems towards efficacy, value, deeper understanding and cost-saving, as there has been limited research to date on the application, processes, and understanding of how public procurement systems function at South African HEIs. This is due to the lack of limited studies conducted to date on these topics. Whilst a significant amount of research has been

completed with South Africa's public sector at large and municipalities (*unpacked and reviewed in Chapters 2 and 3*), limited research has been covered in the HEIs procurement sector. HEIs in South Africa play a significant role in the economic growth and success of the country; as a result, additional emphasis needs to be placed upon their effective functioning as a whole in moving the country forward in order to keep the country moving in the right direction. However, not a lot of emphasis is placed on this department in steering HEIs to be financially feasible and delivering quality service to all of its students and stakeholders. Although the procurement spend of HEIs is regarded as a key critical department that has an effect on the financial controls of these institutions as well as the daily operations of these institutions, this department does not receive a lot of attention.

As per the original and unique findings of this study, it can make a difference at HEIs as follows:

- a) 'People' (employees) are an integral part of the public procurement, but whilst this may be well known in the background of an organisation, the question is: Are employees truly valued and are their capabilities used to the maximum. It can be established from the findings that some employees are determined to bring operational and competitive success to the HEIs they work in but are at times undervalued. Thereby the research indicates that this study can assist HEIs in conducting a matching skills to job description exercise. Procurement specialists could be hired in to assist HEIs with this process, thereby maximising on employee capabilities for operational success.
- b) Highlighting pertinent areas of weakness and shortcoming on the public procurement system and once identified, remedies for this can be changed and help HEIs to move forward.
- c) Identifying ways of 'saving money' and cost-cutting procurement practices. In this way HEIs will be able to appraise savings and utilise it in other useful ways.
- d) Explore the concept of investing in 4 IR technologies by finding value in the benefits that it will offer and the smoother the procurement system will flow.

6.8 PROPOSED CONCEPTUAL MODEL

The proposed conceptual, as presented in Figure 5.19, has been developed by the researcher for use in public procurement systems at HEIs in South Africa. The findings of this study have produced much conceptual thought in generating a Model of this nature. Based on the shortcomings and challenges identified the conceptual model will provide practical insight into how these can be addressed.

The conceptual model (Figure 5.19) discussion is as follows:

Step 1:

Whilst this model has been devised specifically for HEIs in South Africa, step one commences with government. In identifying and elimination collusion, fraud and dishonesty more effective checks needs to be in place for HEI, whilst HEIs follow the rules of National Treasury and regulated laws, the exclusion from Public Finance Management Act, leaves many loopholes in the public procurement system. There must be tighter controls and it starts with government. HEIs have not been totally excused from contributing to corruption in South Africa, thus stricter panels of accountability must be present. Risks will be better managed and eliminated, as there is less autonomy.

Step 2:

HEIs need to make the necessary required changes where gaps exist in their procurement policies and are not properly aligned to National government regulations. All system process need to be analysed and matched against national regulated controls that feed into their respective procurement policies. As the procurement policy was sighted as an important tool of control, accountability and guideline in completing daily tasks, there are discrepancies that exist. At times employees also choose not to follow the policy which thereby increases procurement and challenges.

Step 3:

A review and standardisation needs to take place in all systems steps. Are procurement processes well aligned? Once identified, this will ensure internal barriers are being eliminated and shortcoming identified. Clearly addressed alignment and standardisation add to more effective operational flows. This will add to procurement employees' task efficiency. This will in turn clearly identify the type of procurement system being used in the HEI or is it straddling between two systems. Should changes be made, it can be done. It could be minor and this again improves task efficiency.

Step 4:

Whilst employees understand and are aware of the five pillars of procurement that need be used in their daily work, it must be stressed and effectively managed. Added pressures placed on employees may cause these pillars to be distorted. This requires planning and guidance.

One steps 1 to 4 are completed and a firm procurement planned system is in place. And the key areas may be added into the system. The foundation of the system must commence at steps 1 to 4. In order to create an innovative public procurement system at HEIs, innovative drivers must be added into the system. In some cases, the changes of the system needs to be a completely new public procurement system. The innovative system, must include the following:

- I. Flexibility – the public procurement system must be able to cope with internal and external changes. These changes need not occur regularly, but for example the Covid-19 pandemic, a system must be flexible enough to accommodate different operational processes.
- II. Agility – the public procurement must be built in that it may accommodate new processes or disruptions like load shedding and working offline. Can a back-up be completed, is it agile?
- III. Responsiveness – quick to react to changes and perhaps special codes or nodes may be added to the system to allow for responsive process.

- IV. Sustainability must be considered – a survey to be taken by suppliers before they are considered as a supplier. This will assist the country in moving towards sustainability which is an important part of supplier relations management. Databases must be operational and effective, duplications need to be identified and rectified. The system needs to highlight when suppliers are to be check, by regular supplier checks done.
- V. Funding is an aspect that must be added to the innovative public procurement system. As this is a model developed for HEIs.
- VI. Research is another aspect to be added in, this way academic staff will be able to complete procurement good and services required, less paper, more control. This becomes far more effective and manageable – eliminated manual processes and the misalignment between procurement employees and academic staff requests.

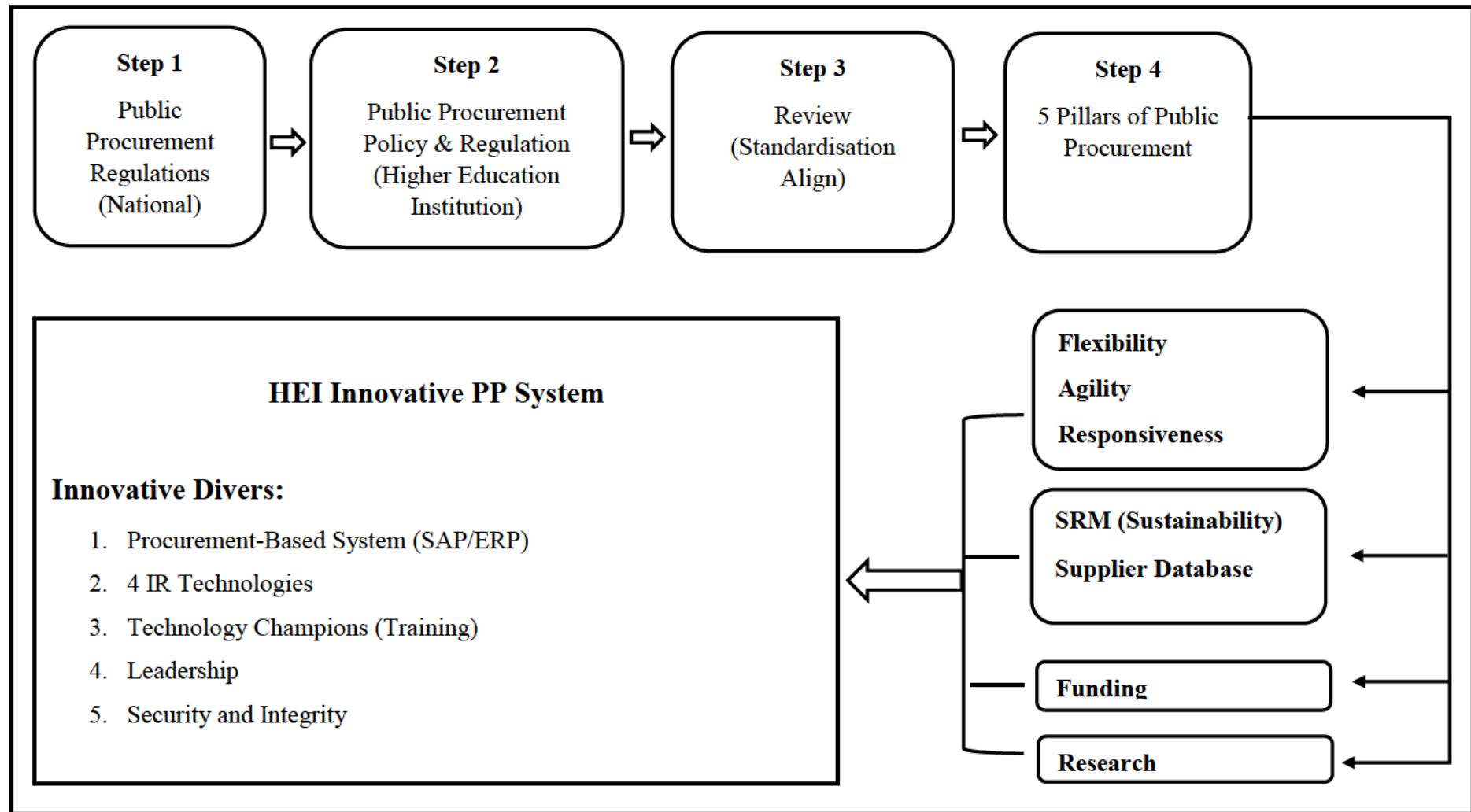
The last and final part of creating an innovative public procurement system are the following innovative drivers to be included into the system.

- a) A specific and tailored information technology system must be introduced, be it an Enterprise Resource Planning (ERP) system or a Systems Application Products system (SAP). The HEI should have autonomy to be able to choose the best suited system for its procurement system. This procurement specified system will maintain and manage a transformed operational procurement system in gaining strategic objectives for the HEI and assisting in reducing identified challenges.
- b) 4 IR Technologies must be introduced and worked into the system. Be it e-procurement, cloud computing or any further artificial intelligence tools. Once these choices of technologies are identified the system must go through a trial run of how it will work in the HEI context, the time frame of a trail run should not be less than a month that way the inefficiencies and lags maybe identified and rectified. Specials information technologists must be employed to put a system of this nature together for HEIs.
- c) Once the new innovative public procurement system is decided upon. Staff must be further trained and fully aware of how the new system will work. The HEI must identify ‘technology champions’ who will then head the training of all staff and be the champions in making all staff fully aware of how the system will work. Manuals and clear guidelines are to be created so that staff feel confident to refer to a document

should they not be able to complete a certain task. Should any difficulties rise apart from the technology champion, the guide will assist at hand.

- d) HEI Leadership involvement in this new system development will be most beneficial to the HEI in eradicating challenges and ensuring accountability at all ends. Good leadership shows commitment and this in turn will in turn benefit the HEI in gaining a competitive advantage, indirectly this will add to cost savings for the HEI.
- e) And at the final end of the model discussion, security and integrity of this new innovative system remains key critical. Hacking is a reality; all measures and check must be in place. As external parties will also make use of this system such as suppliers and. All factors must be considered and a security system at this level must ensure integrity and be secure. Large personal files and key critical information will be entered into a system of this kind, therefore security and integrity must warrant highest levels of security controls.

Figure 6.19: Higher Education Institutional Public Procurement System Model



6.9 CHAPTER SUMMARY

The key conclusions of this study were reviewed in this chapter in connection to the goals, issues, and outcomes of the data analysis. The results showed that the public procurement systems need interventions to overcome the different challenges found. These challenges are preventing the public procurement system from functioning effectively, costing the HEIs time, money, dishonesty, and technological barriers.

The challenges of public procurement systems at the chosen HEIs in South Africa were analysed and described in this chapter. The two portions of the interview questions served as the basis for the study. The basic information about the participants was examined in Section A, and the responses to the open-ended questions by the participants were examined and evaluated in Section B. The difficulties that the South African HEIs in the KwaZulu-Natal area face were also discussed. The study's recommendations, future studies and conclusion are presented in Chapter Six.

CHAPTER SEVEN

STUDY CONCLUSIONS AND RECOMMENDATIONS

7.1 INTRODUCTION

Chapter Six will provide a deeper discussion of the results, conclusion, and recommendations about the public procurement system faced by the chosen HEIs in KwaZulu-Natal, South Africa. This will be done to fulfil the aim of the chapter. The purpose of this research study was to get a deeper understanding of the challenges faced by those selected HEIs in the province of KwaZulu-Natal, South Africa. It did so by doing empirical research on the problems using the public procurement systematic approach using the constructs and rudiments of the study, which were *people*, *process*, and *technology*. The study questions and goals were presented in the previous chapter. Following thereafter is a presentation of a further summarised discussion of the results, and succeeding that is a presentation of the summary, as well as the conclusion that was derived from the findings. After recommendations are made regarding how the selected HEIs could address the challenges posed by their public procurement systems in an effort to gain a competitive advantage, be financially viable, and maintain their sustainability over the long term. At the end of the chapter, the researcher provides some ideas for new fields of study that could be pursued in the future.

7.2 RESEARCH PROBLEM AND THE LINK TO THE STUDY'S RESEARCH OBJECTIVES

7.2.1 Main Research Objective

To identify and determine the challenges of the public procurement system experienced by selected public higher education institutions in South Africa (KZN), and how these can be overcome.

7.2.2 Sub-Research Objectives

- 1. Identify and determine the systematic challenges experienced by key employees in terms of the current public procurement systems in the HEIs.*
- 2. Evaluate public procurement policies and principles of the HEIs in compliance with the operations of agility, flexibility and responsiveness in their daily tasks.*
- 3. Analyse the public procurement system performance of environmental and organisational contexts being used in the procurement systems of the HEIs.*
- 4. Develop a framework that is innovative and technologically advanced in supporting HEIs to deal with public procurement system challenges.*

7.2.3 Research Problem

The research problem posed all the public procurement system challenges faced by employees that are employed at the selected HEIs of the study. Over the last 20 years, South Africa's public sector SCM has experienced various obstacles, as documented in literature (Mazibuko & Fourie, 2017: p. 7). The National Treasury noted in 2015 that stakeholders did not understand supply SCM's strategic value. Uncertain procurement procedures, lack of awareness in meeting market expectations, and lack of technical and technology competence in procurement workers were also procurement system issues (Dlamini, 2016; KPMG South Africa, 2016; Manyathi, Burger, & Moritmer, 2021). For certain stakeholders in the South African public sector, procurement laws and procedures are confusing (Ambe & Badenhorst-Weiss, 2012a: p. 245).

Public sector HEI procurement issues included lack of service delivery, accountability, inefficient procedures, corruption, and lack of creative operations, which resulted in below-average service delivery throughout South Africa (Universities South Africa, 2015: p. 1). Thus, public sector and HEI players must enhance procurement in SCM to meet the South African government's socio-economic development goals (Ambe, 2016: p. 279).

Public procurement at HEIs has not been studied in its entirety. These studies focused on sustainable procurement, procurement processes, and HEI problems. Masete and Mafini (2018: p. 389) noted that most South African HEIs (especially conventional institutions) do not analyse and adjust their processes or keep up with technology advancements, therefore there is a gap between theory and reality in public procurement. Research also shows that poorly organised organisational procurement structures and underqualified procurement officials/management undermine the public procurement function in the "people" component of procurement (Fourie, 2017: p. 2). HEI procurement must meet public sector service-delivery targets while under financial pressure from the South African government (Universities South Africa, 2021: p. 1). South African universities have had issues with governance, leadership, and wasteful expenditure. Thirteen South African institutions were under administration in the last decade (Masete & Mafini, 2018. p. 340). HEI procurement systems need skilled and competent staff, integrated procedures, and developing technologies to improve efficiency and effectiveness.

The study objectives offered the research purpose to identify and define the challenges that selected public HEIs in South Africa (KZN) face within the context of the public procurement system, as well as to investigate potential solutions to these problems. In addition, the research purpose was to identify and define the challenges that selected public HEIs in South Africa (KZN) face. The research objectives of the study specified to identify and investigate the systemic difficulties that key personnel have in relation to the existing public procurement mechanisms at the HEIs. Conduct an analysis to determine whether or not the HEIs' public procurement rules and principles are in line with the operations of agility, flexibility, and responsiveness in their day-to-day responsibilities. Conduct research on the efficiency of the public procurement system, paying particular attention to the environmental and organisational settings that are present in the HEIs' procurement procedures. Help HEIs meet the difficulties posed by the public procurement system by developing a structure that is both forward-thinking and technologically savvy. The research technique served as a compass for the analysis, which was used to address the problems raised by the study. Even though the research was restricted to higher education institutions in the KwaZulu-Natal area, the insights from the participants in the study as well as the empirically analysed data helped in identifying the problems with the current public procurement system.

7.3 SUMMARISED EMPIRICAL FINDINGS DISCUSSION

In this section, a concise review of the discussion will follow the empirical findings as per the study's sub-research questions. It is essential to gain an understanding of how the employees and management view the public procurement system, as well as to develop corrective recommendations with the goal of either improving the system or better comprehending the difficulties that have been encountered thus far in the public procurement process. The qualitative data helps to rationalise the necessity for the researcher to recognise these problems, not as a weakness but rather to emphasise the unique benefits that an efficient public procurement system in HEIs may provide. This is an important discussion based on the main research question of the study. In order to answer the main research question the secondary research questions are addressed.

7.3.1 Summarised Empirical Findings of Sub-Research Question 1:

What are the public procurement system challenges experienced by key employees at the HEIs concerned?

In this study, this research question aimed to identify the public procurement system challenges currently being experienced by employees at the selected HEIs. Participants comprehensively elucidated the key challenges – these challenges were categorised into 2 sections: public procurement system challenges and the technological challenges of the public procurement system. The participants clearly expressed the challenges that are taking place in terms of 'people' and the flow into technological challenges as well, as follows:

People Challenges:

- Administrative issues were given as a challenge due to many bureaucratic inflexible processes. Sometimes, there were too many procurement procedures and rules to follow, which severely impacted the procurement process at HEIs. Although it is beneficial for integrity and honesty, it slowed down the whole public procurement procedure at the chosen HEIs, according to the participants.

- As was the case with large-scale purchases, public procurement professionals are reluctant to participate on committees due to the risk of fraud and corruption, which might be detrimental to anybody serving on such committees.
- According to other participants, their contributions were not considered because their line supervisors were strict and insisted on carrying out duties in the way they saw proper.
- Participants used the phrase "preferred suppliers" to describe end-users who already had a supplier in mind they wanted to deal with and did not support open bidding.
- As a result of insufficient planning, the procurement procedure ran more slowly than necessary. The lack of preparedness from the end-user side caused difficulties and irritations for the procurement department. Customers, no matter how much planning they do in advance, will always prioritise a speedy buying process. This causes the procurement division even more trouble and anxiety.
- Instances of unusual behaviour, as reported by the participants, happened often enough to be considered departures from the norm. Exceptions to the standard public procurement method were required if it became clear that expensive or specialised equipment was required for a project.
- These last-minute buys put additional stress on the institution's procurement system, just as other unforeseen costs did. Corruption in the procurement process might sometimes take the form of an official using his or her judgement inappropriately.
- Load shedding has become a normal part of daily life in South Africa. Load shedding refers to the practice of reducing electricity for predetermined periods at regular intervals when there is an increase in demand for the national electrical system. Thus, the challenges it introduced were felt across the procurement process as well. When load shedding was implemented, all of the systems crashed.
- Issues arise during procurement, especially for staff employees with minimal knowledge or when there is a change in the system, because of a lack of training offered as sighted at one HEI.
- One of the participants brought up the fact that the procurement system at their HEI is not very smart, and therefore it cannot detect abnormalities; these inconsistencies are instead uncovered by human understanding. If a worker with the procurement system does not notice the anomaly or unusual conduct, it will not be detected. This was so because some staff members also owned businesses outside the institution and made

use of such businesses to supply the institution. For this reason, a mechanism to detect and prevent such an occurrence was required.

- Many obstacles related to compliance were encountered. Insufficient compliance was found across the board at the chosen HEIs. In this case, we are talking about rules and regulations governing the supply chain. Numerous bids for items that did not meet the required standards were submitted without following the proper quote process. One participant made an interesting observation that the current system of public procurement is failing at the government level. This meant that any institution or group that followed the same procedures would be susceptible to the same threats. Since then, national policies require revision.
- There were several issues with the ethical component at HEIs because of unethical behaviour that needed to be addressed. Corruption and fraud in public procurement affect all levels of government in South Africa. This was a widespread problem at universities and colleges as well. Misappropriation of funds, favouritism of vendors, and the creation of for-profit enterprises by former university employees all contributed to the problem. There has been a slow but steady downturn in South Africa's economy in recent years, and this has prompted a fresh focus on the effectiveness of state procurement.
- There are no reliable system security safeguards in place to prevent bribery in the public procurement system at HEIs. The effect was that certain vendors would try to sneak into the system. Due to lax financial controls and direct communication between end-users and suppliers, irregular expenditure is a common occurrence at modern HEIs. Additionally, favouritism of suppliers was seen, especially with handwritten requisitions. Due to the absence of safeguards in place for manual requisitions at HEIs, customers may have turned to their personal networks for service. In addition, there was a component of political purchasing at play, in which students demanded certain things despite not having a genuine need for them, and threatened to take protest action if they were not provided. This was a factor in the buying of political office. While it was helpful to have a risk management framework in place to lessen the possibility of fraud and other dangers, the time it took to complete the necessary checks and balances meant that procurement cycles dragged on for too long. Procurement is often a focus of investigations into complaints about suppliers' performance. Procurement is primarily responsible for purchases, hence they do not handle this. Although it is the end

responsibility of users to oversee supplier performance, procurement is regularly called and requested for updates on the status of the suppliers in question.

- This analysis revealed details on operational issues with certain suppliers. Lack of attention to supplier relationships was a common recurring issue. This topic, however, shows how issues like favouritism, nepotism, non-compliance with documentation requirements, and irrational pricing emerge when there are no links with suppliers. The consumers showed bias toward a few vendors, which was against the rules of the organisation. Moreover, some vendors missed deadlines for delivering needed supplies and services. Two weeks of waiting for delivery was an unacceptable practice at certain institutions. Since all banking data are needed to be checked to avoid fraudulent payments, the payment process would be disrupted when suppliers changed their banking information without telling the institution's procurement department. Some vendors increase their prices, especially if they are included in the database; however, another vendor may supply the same thing at a much cheaper price, but they may not be included in the vendor database.
- The difficulties faced by employees at the many colleges and universities studied vary. Acquiring information, wisdom, and practice - Problems surfaced sometimes due to procurement staff members' varying levels of expertise. If, for example, a member of staff does not fully grasp a method involving bids, it is their responsibility to make sure the process is not disrupted. Additionally, it is possible that workers from different departments are unaware of one another's roles. Those who were unfamiliar with the inner workings of the supply chain and procurement were prone to making errors while submitting quotations. In addition, employees often broke the law due to misunderstandings of new regulations or revisions to existing laws. The procurement process' constraints prevented useful information from being gathered. Although this was essential for risk management, it hampered efforts to apply data to processes in order to achieve continuous improvement. Strict norms and procedures reduced opportunities for professional communication with stakeholders and suppliers. This might give the impression that the institution takes a hard stance on the matter.
- Procurement was still having trouble finding sufficient funds and resources. End-users wanted to make purchases but lacked the budget to do so. Every step of the higher education institution's procurement process would be followed until it was finally revealed that individual cost centres lacked the funds required to reach financial close.

In the end, they become caught up in the system, and the procurement team is encouraged to ignore the financial aspect, which is neither ethical nor professional. Further, the various forms of funding caused friction. Administrative funds, research funds, tuition funds, and many other types of financial resources were all available for use at postsecondary institutions. Thus, there was no overarching plan, and the PFMA was insufficient. In addition, there was a required monetary outlay that had to be met by a certain deadline. The procurement procedure is complicated further by these grey regions. Employees occasionally had to use their own resources, such as their personal phones, to contact the firms they needed to do business with while the phones at the office were down. As a result, workers suffered extra expenses that were still not covered.

- On the other hand, adaptation was affected by ethical concerns. Some of the employees were able to adjust, but they did so without breaking any rules or procedures. As part of their code of work ethics, some employees had to be able to change.
- Due to the change in circumstances, people also learned to be very flexible. The Covid-19 pandemic was one of the most sudden changes to the world's environment, and it affected all countries and situations at the same time. So, the change was a surprise, and the employees had to adjust very quickly to the new rules about lockdowns and working from home. Also, unexpected problems can happen in any situation, and to deal with them well, a person needs to be able to change. There are times when problems get worse and need to be fixed promptly.

Technological Challenges:

- It was deemed that the procurement processes were inefficient due to a large number of screens and options available to users. As a result of the system's incomplete supplier data, staff members were also required to make further inquiries directly to suppliers. Information was also updated quite slowly in the system. The procurement system failed to update correctly whenever changes were made to the procurement team's access rights or physical location. If an employee was moved to a new school or department, for example, the system would continue to display their prior position and information. The slowness of the networks at the tertiary institutions was also a problem. The system would be inactive and users would be unable to do any sort of

processing if the network was running at a slower pace. Also, things moved slowly since the procurement system sometimes crashed and had downtime. The procurement team was not even told of the IT department's planned downtimes, which led to wasted time and effort processing orders.

- There were many various reasons why the actual mechanisms that were put in place were insufficient. Concerns have been raised that the procurement mechanisms at certain universities and colleges are inadequate. The procurement system at one university was interwoven with several unrelated subsystems, including human resources (HR), students (Students), and academic support systems, making the existing IT support system inadequate. Therefore, a separate and specialised procurement method was required. Several people remarked that the procurement system, as a subset of other systems, was not streamlined enough to ensure effective procurement processes, which is related to the fact that the previous point was made. To evolve into a more specialised system, procurement processes must be more integrated and simplified. When compared to newer, more efficient methods, the procurement systems at the chosen HEIs are woefully inadequate. A 'research' component, necessary for the purchase of research-related items utilising research funds, is missing from their institution's current procurement system. Procurement staff were unable to provide a reason for a request denial because the tools at their disposal did not allow it. If the demand is not met, the customer is left wondering why. It is a major obstacle that has to be overcome. One of the most critical problems was the unreliability, lack of timeliness, and inaccessibility of the supplier database. Numerous kinds of establishments' databases were missing critical supplier information. There was no way to search for prospective vendors. Therefore, it was difficult to keep in touch with vendors and link requisitions to suppliers to get pricing information.
- Participants have pointed out the severe technical shortcomings of the study's participating universities. There was a significant reliance on manual processes by the sampled HEIs, in contrast to their automated alternatives. There were still numerous manual processes in use, such as printing orders and manually recording data. In addition, reporting was done manually, which required a lot of paper for each step. A lot of room was needed for actual filing because of all the paperwork that had to be printed out and sorted by hand. Doing this was wasteful on both practical and financial levels. It also made it harder to get information when needed. As a result of the

increased demand for physical labour, more workers were required; nevertheless, several institutions were unable to fill open positions in certain of their departments. Employees who violated the terms of their contract received no proper warnings since there were no suitable automated procedures in place to provide such alerts. The current manual process prevents this type of tracking and monitoring from happening. Any process requiring human involvement increased the possibility of both error and manipulation with the necessary documents and pricing. Consequently, further automation was required to lessen the possibilities of human error and interference. Vendors needed to provide extensive supporting paperwork. These contain tax exemption certificates, business ethics evaluations, and any other necessary legal paperwork. However, the system was unable to automatically import papers of this kind, thus it had to be done manually. When taken as a whole, the number of potential suppliers may be in the thousands, leading to a massive output of goods. There was a lack of dedicated or specialised procurement mechanisms at the institutions. Since each division uses its own method to get things done, it is hard to establish any kind of uniformity. The present hybrid procurement techniques utilised by certain companies are a prime example of this. Consequently, there was an urgent need for a sophisticated procurement system, such as an "e-procurement" system, that could be easily incorporated into the pre-existing institutional framework and essential stakeholders' workflows.

- In addition to issues with the procurement system itself, users' interactions and manipulations of the system also caused issues. Especially after a change was made to the procurement system, there were a few instances of employees not being able to use it properly. The workers' inability to adjust to the new circumstances caused this. Budgets and associated commitments need to be verified by the employees, and they require guidance on how to do so. And even directors and other high-ranking employees lacked the technological literacy to complete approvals electronically. This caused a delay in the procurement procedure. The more the use of technology, the less need there is for physical labour, which might lead to a decrease in the workforce. This would lead to a drop in employee incentives to increase their usage of technology in the workplace. Many steps in the procurement process required approval from several divisions, which created delays. Therefore, the process would be slowed down if people did not provide their consent at the right moment or were too busy. To add insult to injury, vendors did

not appreciate why it was crucial to update their contact details often. Suppliers would often ignore procurement's emails, only opening them many days later. Due to a lack of proper instruction, staff members were unable to manage the procurement system effectively. In addition, the IT department never consulted the workers who actually inputted the data before making any changes to the system. Employees felt overloaded since they had to learn the new system without knowing what types of changes had been made. That meant workers had to rely on their own knowledge of the procurement process.

- The utilisation of technological systems came with a wide variety of potential dangers. Fraud can occur while using electronic signatures since anyone may pretend to be someone else to get access. With the prevalence of internet assaults on institutions, the fact that procurement systems may be compromised is a major cause for alarm. Inappropriate information sharing made possible by technology has the potential to poison underlying processes. As an example, receiving pricing quotes from vendors you had no plans to contact was reported in HEIs. The institution could not have prevented the load shedding that delayed the procurement processes and posed a danger to them. The hardware, which comprised personal computers and servers, was also at risk.
- There were important gaps in the way the procurement systems worked. Links to providers were missing. From the point of view of the database, there was no link between the systems and the providers. Since there was no good supplier database, it was hard to keep track of, get in touch with, and keep an eye on suppliers. This was talked about in other threads. Also, it was hard to upload the documents that were needed to verify the provider. So, a database connection has to be set up with suppliers so that suppliers can update their information and send any necessary documents for validation. This could mean less work for the people in charge of buying things. The missing link to performance management: On top of this, there was a gap between how contracts were managed and how performance was managed. This is important because suppliers' performance should be written down so that audits can be conducted.
- Technology was another important part of the beginning of change, which made it necessary to be able to adapt. Because of the influence of technology, the chosen HEIs switched from doing procurement by hand to doing it automatically. This was because of several factors, such as the need for efficiency, organisation, storage, and

communication. So, staff members had to get used to technology if they wanted to keep doing their jobs. Still, even though they had to change, many employees welcomed the move to technology. Also, situations like COVID-19 made it necessary for employees to work from home using technology, so they had to change. Some employees had to try things out and see what worked and what did not, especially when it came to new technology. This helped them figure out on their own how the new procurement system worked. This also showed the ability to change. The way supply works is changing because digital technology is rapidly mutating.

- Some institutions used versions of SAP and ERP to make sure that their procurement system was better connected to the many departments that had a stake in it. These were strong systems that worked well because they were made for that purpose. But some of the people taking part are not sure when these systems will be fully put in place. Using modern online technology also made the process of procurement more flexible and quick. It meant cutting down on the number of handwritten requests and using electronic documentation to talk with suppliers. Going paperless was a big idea that was made possible by more people using the internet and technology. It saves space, time, and the environment. Less paperwork also meant less tedious work. The idea of working from home was thought to be revolutionary, and technological advances made it possible again. Meetings and other events could also be done online, which would save time, money, and space.

7.3.2 Summarised Empirical Findings of Sub-Research Question 2:

*How do the HEI public procurement policies and principles comply with the systems processes of **agility, flexibility and responsiveness**?*

Procurement Process:

- Compliance must be seen as required in any situation, including the context of public procurement, despite the fact that the circumstances may be different. This includes acting in accordance with any rules and legislation currently in effect.
- It was revealed that the procurement process was complex and affected by a broad variety of factors. Multiple elements, which will be covered in the study's results,

contributed to the acceleration of the procurement procedure. The end user would conclude that they need a certain product or service, and then their department would make a request for the item. The request may be executed through the system, manually, or in a hybrid fashion in which certain actions are performed online and others are performed manually. It was fully dependent on the capability of the questioned technology. Occasionally, delays occur, which slows the flow of the public procurement process. The relevant buyers will inspect and double-check the request and supporting documents, as well as ensure that the order is appropriately documented. Additionally, they will examine the policy to ensure that the proper processes are being followed. There were several rules governing the public procurement process, and these policies had to be adhered to at all times in order to ensure that procurement was performed in an honest and ethical way. This aspect of policy will get comprehensive discussion as its own subject. In addition to the rules, compliance with a variety of public activities was required.

- The most significant participants in the process of purchasing items and services via sourcing and procurement were the suppliers. In order to finish this operation, it was necessary to first discover the supplier's record in the institution's database. It would have been ideal if the database contained all relevant and frequent providers. After that, quotes from them would be requested. However, it is rare for certain departments or end-users to have preferred suppliers. These preferences may be based on price, quality, service, or specialisation, among other factors.
- If the end-user already has a preferred supplier or has obtained products or services due to emergency circumstances, a deviation procedure must be followed. This indicates that if the end-user has a preferred vendor or has already bought products or services, that vendor should be considered. This will need comprehensive support and documentation, including explanations of the decision's rationale and justification for its implementation.
- It was assessed if institutions' procurement procedures were more centralised or decentralised. The majority of institutions were found to use a decentralised to hybrid model. Participants confirmed that their institution's approach was more centralised. This was partly owing to the fact that a central procurement office handled the bulk of the purchase. Each buyer was responsible for managing procurement for a certain department. In addition, their systems are created in a centralised fashion. The

decentralised concept was influenced by the departmental model, the college model, and many scenarios. At some institutions, each college/university has its own financial and procurement department, as well as its own buyers. These departments were primarily responsible for procurement. Each College was responsible for its own procurement within the institution that used the College model. Only important purchases involving competitive bidding were handled via the central office. Because each College, Faculty, and/or Department has unique needs, a decentralised strategy was also used. At some institutions, each college/university has its own financial and procurement department, as well as its own buyers. These departments were primarily responsible for procurement. Each College was responsible for its own procurement within the institution that used the College model. Only important purchases involving competitive bidding were handled via the central office. Because each College, Faculty, and/or Department has unique needs, a decentralised strategy was also used. The majority of HEIs, however, use a mixed procurement approach that combines decentralised and centralised procurement departments. Nonetheless, the central procurement office must participate in a couple of the procedures. Departments and schools may make their own purchases and are subject to their own official price according to their own needs. The hybrid model is bolstered by PURCO's participation in the procedure.

- Participants' discussions made it quite evident that no supplier relationship management procedure was in place. In the procurement process at the HEIs, there was no established protocol for dealing with vendors. Due to the absence of a supplier relationship management methodology, there was no long-term connection with the suppliers. The only time vendors were contacted was when their products or services were really needed. It was a more reactive relationship, with the supplier being contacted for their products and services and if any concerns arose. In addition, if there was a need to negotiate pricing, we would do so. Email and phone calls were the most prevalent forms of contact for this. In addition, the department receives no feedback on the performance of the supplier, preventing it from understanding whether or not the supplier provides high-quality products and services. As a consequence of most institutions adopting a decentralised strategy, the bulk of contacts between institutions and their suppliers occur at the personal or departmental level. Consequently, it would seem there is no need to maintain contact with the suppliers at the central level.

Significant numbers of respondents said that their relationships with suppliers lacked standardisation. Each department and employee developed their own method for contacting and collaborating with the many vendors. In addition, the disconnected organisation of several organisations resulted in separate processes. As a consequence, there was no technique that was transparent or standardised for interacting with the supplier.

- Inconsistent systems and databases prevented the rapid addition of new suppliers, modification of current ones, or deletion of information about them. In addition, it was unable to add other suppliers. In addition, searching for a supplier in the database was not straightforward.
- The authentication of suppliers was an additional issue that required care. It was required to expand the number of supplier physical inspection-based verification procedures. At the time, there was an overwhelming reliance on the documentation given by the providers alone. Additionally, there seemed to be a lack of supplier credentials. Some vendors may understand how to provide a service, but they lack the required qualifications. Due to the uniqueness of each institution, suppliers need the training to get acquainted with its operations. Therefore, they needed to be aware that HEIs adhered to different regulations, principles, and procedures than the commercial sector since some vendors mistakenly considered it to be a one-size-fits-all strategy. The absence of supplier ties presents a danger that a favoured provider may obtain access to the system through a backdoor.

Procurement Policy and Principles:

- A lack of unanimity existed over the success of the policy, which may be regarded as an indication that it was effective but had room for improvement.
- Even though policies were deemed beneficial, it was stated that they need reform. Policies required the following enhancements: Some institutional policies required a regular review and update. There was also a need for standardisation of policy across all public HEIs. Even though the institutions were now in the public domain, their policies varied to some degree. This resulted in inconsistent supplier relationships. Alignment with relevant Acts; policies must be linked with pertinent Acts. This was lacking in some institutions. Some institutions merely adhered to the law when it suited

them. It should be a must. From an operational standpoint, the following operational aspects need improvement: Despite the existence of a policy on paper, the corresponding practices were distinct. The policies specified what and how things should be done, but institutions lacked the necessary structures, personnel, and resources to implement them. This led to process-level discrepancies. In several situations, policy hindered the efficiency of an organisation. Due to the dynamic nature of HEIs, it was necessary to expedite some payments. When an academic was required to attend a conference, for instance, there were deadlines for payment of registration fees and logistical charges to the conference organisers. In addition, if a variation was necessary, it had to be submitted to higher levels of authority, which may take time since these individuals were busy and may not reply promptly. One respondent said that policy making does not take into consideration questions from the bottom level. It was essential to contact individuals at this level so that the policy could be aligned correctly. In certain institutions, the substance of the policy itself needs to be modified.

- The policy required to provide more complete information. Some ambiguities and regions were open to interpretation. It was suggested that possibly there should be more than one procurement policy. This is because various regions needed distinct procedures. For example, research procurement was substantially different from typical procurement.
- The PFMA was extensively used in public procurement despite having various grey areas that might be interpreted in different ways, including at HEISs. This led to discrepancies in areas such as contract management that are not addressed in written rules. Moreover, the PFMA made it more difficult to control procurement and gave end-users more freedom in terms of suppliers and offers since most institutions were under Schedule 3A.

Agility:

- It turned out that the policy included a fair room for flexibility.
- Since the amount of time it took to complete procurement procedures was so low, the policy might be considered agile from that point of view.
- Because it directs a more simplified approach, the policy does, to some extent, reduce the impact of operational concerns. The policy is thus more adaptable as a result of this.

The use of online technologies like online requisitions contributed to more flexible business processes.

- On the other hand, some people felt that the policy was not adaptable enough. This was because the procurement process and the scenario might be unique at times, even though the regulation was simplified. Because of this, it was difficult to depart from the path. In addition, the College model was used at one university, which meant that there was procurement done both at the College level and the central level. Since the systems that were in place were not adequately setup for such a paradigm, this left very little opportunity for agility.

Flexibility:

- Many thought the policy was flexible but also inflexible. The policy permitted variation for emergencies. Deviations need high-level justification and authorisation. It provided flexibility for unanticipated procurement situations.
- The policy enabled supplier negotiations and price optimisation. It educates personnel on procurement activities. For instance, tendering and waiving. Flexible. Staff can grasp the policy's restrictions. Policy rigidity was found. The policy was non-negotiable. Procurement required proper quotes.
- Some institutions had tight procedures. The purchase "type" determined flexibility. Some products need specialised procurement.
- At one institution, procurement was rigid.

Responsive:

- There was evidence that the policy is responsive, as well as signals that it is not responsive. Regarding responsiveness, the following was discovered. The policy does support turnaround time and provided the proper procurement procedures are followed, items and services are obtained on time. Online communication facilitates the acceleration of the procedure. People were able to exchange information and ensure that everyone was aware of essential procedures due to transparency. This reduced confusion and accelerated procurement procedures. Suppliers and connected parties must also comprehend the policy and adjust their services appropriately.

- Unresponsive because it slows down the process - Some respondents thought that the quote procedure and associated paper trails required a great deal of time, particularly when procurement needed to be completed fast. In certain circumstances, even the lowest provider could not be picked if all the documentation was missing. In addition, there were several routes to navigate before receiving permission. While the policy may be clear, departments lacked an acquisition strategy. This meant that operationally, procurement may be delayed. Compliance may undermine responsiveness. The policy required adherence to all essential concepts.
- The responsiveness of the procurement process may be affected by the number of parties engaged. Occasionally, the end-grasp users of the policy are poor, which limits responding.

7.3.3 Summarised Empirical Findings of Sub-Research Question 3:

How do the environmental and organisational contexts in HEIs influence public procurement system performance?

Environmental Setting

- An early investigation of the influence of technological advancement on public procurement was conducted with the environmental context as the focal point. The use of technology may facilitate the transition away from paper-based activities. The majority of institutions continue to rely heavily on paper, which has a detrimental impact on costs, storage space, and overall productivity. It is possible to make information readily accessible and use it in the process of planning and decision-making. The storage of data can be completely frictionless, and the storage of files online can be both safe and easy.
- The use of technology helped to make things more accessible and flexible by making it simpler to get to those things and to utilise them. Because everything was hosted online, users could access the system and do their job remotely from almost any location. This may make receiving permissions from HOD easier. This was useful during COVID-19 when individuals were compelled to labour from the comfort of their own homes. Technology has made the procedure simpler to carry out by facilitating the smooth

uploading of papers like quotations to systems and providing access to online portals where documents can be found. In general, technology has made life easier by enabling everything to be done online, eliminating the need to make personal contact with other people in order to gain approvals and other forms of tangible proof.

- Both the effectiveness and the velocity of the process saw significant improvements. The processing of orders for online approval might be finished in a few minutes at most. Every individual who is taking part in the process may now simplify and streamline their activities online. As a direct consequence of this, the time needed for procurement and turnaround is cut down. The institution can provide its services more efficiently because of increased efficiency. People do not need to wait for their products or services for an unreasonable amount of time anymore.
- Technology has a positive influence, as well, on the ability to monitor compliance with regulations. Online measuring was made possible by technology, which simplified the process of adhering to established policies and protocols. It is possible to track and monitor processes, which makes it feasible to always know the state of such processes at any given moment.

Organisational Setting

- The influence examined how the evolution of technology has impacted public procurement in an organisational setting. Moreover, the impact was favourably assessed. Effectiveness and process improvement were mentioned as positive factors. The use of electronic signatures and approvals enhances the effectiveness of an organisation, expanding on the preceding themes. One institution intended to implement ERP shortly, and it would be customised to meet all procurement needs. This will be linked to suppliers for the purpose of collecting bids, and other stakeholders will also be linked. There will be a reduction in manual labour and a simplification of processes. In particular, when approval levels increased and the system became more complex, technology improved the efficiency of work. Due to good management and monitoring, processes may be built more effectively. All incomplete tasks might be tracked.
- Compliance and accountability were enhanced at the organisational level in a way similar to the environment setting. Every user's actions on the system may be monitored

with more transparency. It holds people accountable for their actions. In addition, it permits the identification of where and by whom the process is being slowed down. This may then be followed up on. Currently, there must be a significant increase in process and policy compliance. Consequently, new systems may seek to promote compliance from the top down and eliminate fraud and corruption.

- Technology has increased the adaptability of communication and employment. Staff will be provided expanded access privileges, with this choice being made by leadership. Leadership can determine which personnel have access and to what degree. This will boost production since procedures will no longer be constantly delayed by others' unavailability or busyness. The system will also allow suppliers to submit their documents. Uninterrupted, remote and flexible work may continue. Virtual meetings are simple and quick to conduct. Even issue resolution may be accomplished online, eliminating the requirement for physical exertion. Technology facilitates communication and the dissemination of information. This enhances the transparency of the processes for all workers and stakeholders.

7.3.4 Empirical Findings of Sub-Research Question 4:

How can the technological innovations improve the efficiency and effectiveness of public procurement systems in HEIs?

Recommendations to overcome Technological Barriers:

- It was recommended strongly that the system be expanded. This system would automate the whole procurement procedure, from start to finish. Regarding procurement, there must be a completely automated system from start to finish. There should be no manual procedures present. It must be able to upload and save documents automatically. It should allow all types of purchases, including research-related ones. To enhance fairness and transparency, it must also be interconnected with all relevant parties. The database must be flexible and easy to update. Notification was necessary for rejection. As a consequence, a space was necessary for the procurement officer to explain the grounds for rejection. Consequently, this may inform the end-user. Cost centres and research procurement should also be included in the system. Currently, research-related

purchases are made individually, and the bulk of them are still processed manually. The system requires sophisticated security and access controls. A high degree of identity management is required. As a consequence, fraud and deliberate and inadvertent security breaches will be reduced. The system must be streamlined to make the approval procedure easier and quicker. There should not be too many permission screens; rather, there should be one comprehensive approval screen. An excessive number of displays causes delays and confusion. The system's quickness is essential. A sluggish system will slow down the procurement operation. Therefore, turnaround time is dependent on system speed. The system must be "intelligent" to detect possible conflicts of interest generated by suppliers using two accounts or by employees who are also suppliers.

- The procurement procedure must be the major emphasis of the system. Access permissions for procurement personnel should be routinely reviewed and updated. This prevents workers from gaining inappropriate access and causing more delays. Occasionally, a staff person may not be at their machine for any reason, delaying the whole transaction. In addition, the existing system was incapable of issuing warnings when papers were past due. This needed editing. With the advent of large-scale systems and modern technology, an SAP- and ERP-centred main procurement system should be implemented. This system focuses largely on the whole procurement process and includes the necessary controls and safety measures. This system can support a large number of procurements that are suitable for the higher education setting. In addition, Applications functioned as a common platform for interaction and procedure in the contemporary age. Apps were the new secure and flexible manner of doing business. Even banks utilised apps to communicate with their customers. To maximise the flexibility, velocity, and adaptability of the procurement process, procurement applications should become commonplace. To handle a big number of suppliers, it is necessary to completely restructure the supplier database. In addition, it must be able to organise suppliers based on criteria, let suppliers submit documents, and ensure that all supplier requirements are satisfied.
- Staff personnel must be aware of and have access to technology. The employees are typically unaware of technological advances that impact the system in which they operate. Meetings and seminars may be utilised for formal communication, allowing employees to express comments and ask questions. In order for workers to accept technology, it is necessary to have an effective change management approach.

Employees should not be compelled to use technology, since this may result in resistance. Therefore, an organised approach to change management may be quite beneficial. Never understate the significance of continual staff training, which should be embedded into the technology implementation culture.

- In order for technology to be implemented properly and successfully, it was important to have a sufficient institutional framework in place. The effectiveness of technology is only as good as the mechanism that regulates it. Before technology could be implemented in accordance with the guidelines, a procurement structure from the top down needed to be built. Then, systems might be comprehensive, interconnected, and readily included.
- A substantial proportion of respondents were unfamiliar with 4IR, indicating that the 4IR technology is not already in use and should be considered for the future. A handful of respondents did express a desire for more usage of artificial intelligence in the procurement process. This can include a biometric access system, a system that can predict what type of procurement will be required for which seasons based on historical data, and intelligent databases that can verify, sort, and arrange quotations based on the supplier, as well as provide reports regarding these capabilities. It was recommended that cloud technology, which was already known to a large number of people, be used to provide endless data storage and accessibility. In addition, there would be no data loss. This has the potential to save a substantial amount of money and resources for the organisation. As we approach a new age of ecologically responsible practices, the 4IR has the potential to ensure a totally paperless society, therefore reducing the need for carbon taxes and aiding in the preservation of the natural environment.

7.4 RECOMMENDATIONS OF THE STUDY

The research questions that were determined from the literature review have been outlined in this study (Chapters 2 and 3), and the data have been thematically analysed, which has led to some interesting findings. In order to have a better understanding of the underlying systematic challenges faced by the institutions that were chosen for this study, a qualitative research technique was adopted. As a result, the recommendations that will follow will concentrate on the factors that impact the public procurement systems used by HEIs in South Africa. In this study, the researcher has identified the following recommendations:

7.4.1 Recommendation 1 - PEOPLE

The concept of "employees" is at the very centre of both the system and the process of public procurement. According to the findings that were mentioned, employees of the many HEIs that were examined found a broad range of challenges. These data provided the foundation for the first clear recommendation that emerged from the research. Procurement procedures are driven by employees, and these processes are ultimately incorporated into the wider public procurement system. There is not an exception to this rule at any of South Africa's public HEIs. According to the results, each HEI runs and functions at levels inside its own procurement systems that are quite similar to one another but also highly distinct from one another. This was certainly a startling realisation.

Therefore, the effectiveness of the public procurement system can only be proportional to the workers and operational structures that are present inside and within the system. As a result, it is suggested that the national government of South Africa return to the drawing board in order to devise a procedure and system that are standardised for use by HEIs. Although there are three distinct types of public HEIs, as described in Chapter 1 – Section 1.7, namely Comprehensive Universities, Traditional Universities, and Universities of Technology, an effective standardised public procurement system could be created in accordance with the various types, or one holistic public procurement system could be implemented for all public higher education institutions in South Africa. Following the implementation of this standardised public procurement system, a significant number of the difficulties that have been recognised as a result of the study's results will definitely be eliminated. Because of this standardisation, it will be guaranteed that all public higher education institutions in South Africa comply with the rules that have been established and that all of their procedures fit within those parameters. Because of this, the public procurement system will maintain its relevance, trustworthiness, equivalent standards, and consistency. In this approach, there will be shared internal and external controls, as well as a clearly defined option of a procurement system, which may be either centralised, decentralised, or a combination of the two. An element of standardisation within suppliers across all HEIs in South Africa may be possible, provided that these suppliers can contract to all HEIs and that their business is large enough to deal with the capacities required. This is because HEIs in South Africa are all placed in geographical locations that are geographically separated from one another. If this is not the

case, standardisation will, once again, guarantee that fair and ethical procedures for supplier relationship management are followed. The procedure will be successfully put into place via the use of Standard Operating Procedures (SOP). A National Procurement Council specifically for South African public higher education should be established as part of the Standard Operating Procedure to ensure that all higher education institutions are represented in annual accountability financial and operational reports. This may also be tied to and developed as "individual procurement scorecards" (which would not be directly related to BBBEE Scorecards), which would be included in their annual performance monitoring of personnel. The Vice Chancellors of all HEIs must get training on all of the operational processes of how the SOPs will operate and the influence of the standardised public procurement system procedure. As suggested, if it is implemented, this recommendation will result in several beneficial outcomes, including the following:

- a. Increased standards of quality control at all levels, schools, departments, and sections of the HEI public procurement system.
- b. A decrease in expenditures and cost-cutting scenarios.
- c. An increase in employee productiveness which then impacts into the institution in a favourable way.
- d. A lesser incidence of dishonesty and fraud as a direct result of increased transparency about accountability amongst employees
- e. Since digitalisation is the reality of standardisation's future, the development of new technologies is essential to its progression.
- f. Risks are mitigated and managed
- g. Better internal communication structures with the HEI – well-aligned SOPs will add further value and meaning to the HEI's procurement policy. It will not just be a procurement policy that exists but rather it will be operationalised.
- h. Sets out clear goals and processes to work towards and adhere to these goals and processes
- i. Will effectively assist in matching team skills per individual employee.
- j. Real-time (there will be an increase in responsiveness) procurement processes – thereby adding to the effectiveness and efficiency of daily operational processes.

7.4.2 Recommendation 2 – PROCESS

According to the results of the study completed, management did not put much importance on creating and sustaining supplier relationships. This investigation uncovered specifics about operational concerns with certain vendors. A typical recurrent problem was a lack of focus on supplier relationships. In the absence of Supplier Relationship Management (SRM) process, concerns such as favouritism, nepotism and noncompliance manifest, according to the findings of the research. This led to irregular supplier connections and an inaccessible database of suppliers. From the supplier database's perspective, there was no connection between the systems and the suppliers. Since there was no reliable supplier database, it was difficult to trace, contact, and monitor vendors. With respect to the findings, this resulted in the second recommendation that will be presented. Building a SRM Model for HEIs to use as a blueprint on how to effectively maintain and manage this relationship for efficiency in the public procurement system. Supplier relationship management is an important practice for ensuring that an institution has cost-effective suppliers that are easy to deal with and satisfy your institution's requirements. Having a workable and functional supplier relationship management system in place will help you not only identify the best suppliers for your company, but also assist you achieve your business objectives. An SRM model will be intended to improve the success of the HEIs supplier relationship.

An SRM approach will enable HEIs to grow and strengthen their relationships with their suppliers/vendors, but it will also require intense commitment of time and money on the part of both HEIs and their suppliers. Within the SRM concept, the database may be built using current 4 IR type technologies. A piece of advice would be to employ a professional procurement specific consultant to begin working on the supplier database, weeding out old information and duplications, and cleaning up the database for efficiency in the HEI. HEIs need an operational database capable of producing the outcomes demanded of suppliers/vendors as well as other essential data for procurement employees. It is also thereby recommended that investing in supplier database software at HEIs would be a significant and useful development.

The SRM Model will deliver marketing benefits, cost-effectiveness, and supplier relationships. Favouritism, unethical supplier practices, and dishonesty will surely be eliminated, since the model would also require all information to be recorded inside the process. Although that maybe a slow process, but it can aspire to achieve this. Again, information technology software for the database and model all included in one would greatly improve the entire SRM process at HEIs. According to the findings of this study, persons participating in SRM do not have the needed abilities. As a result, it would be helpful to build an SRM competence training framework inside the SRM Model that incorporates technical, relational, and developmental competencies as well, short tutorials may assist. It is also recommended to analyse both internal and exterior settings, which will result in supplier visits and face-to-face examinations. In the findings, it was found that very rarely as supplier face-to-face visits are completed, as there are capacity and time challenges, work needs to be completed. Once HEIs have collaborated with a supplier, they should ensure that they measure the outputs obtained from the SRM model to verify that the model is providing the intended public procurement system operational outcomes.

Over time, supply chain sustainability has emerged as a critical aspect in organisations and institutions globally and in South Africa. The concept of 'awareness' with regards to taking care of the earth and climate change has increased since the pandemic of Covid-19. This shift should also cause the supplier-buyer relationship to evolve and strengthen, in terms of sustainable practices. Suppliers are no longer just partners in the procurement process; they are now an important element of the supply chain process and therefore should be encouraged to adhere to sustainable criteria set out by the institution. Institutions, as a result of the criteria set out may become more resource and energy efficient, improve their operations, minimise waste, and produce sustainable insights and new ideas by working together with their suppliers. The beginning of a new sustainable aware relationship would be a good time to introduce a more sustainable emphasis in the supplier-buyer process.

7.4.3 Recommendation 3 – PROCESS

The National Treasury's legislative mandate in South Africa is based on Section 216(1) of the Republic of South Africa's Constitution of 1996, which states that the National Treasury is responsible for ensuring transparency, accountability, and sound financial controls in the management of the country's public finances. This obligation is expanded upon in the Public Finance Management Act (PFMA) of 1999. The modifications to the Public Procurement Bill were eventually implemented in 2020. It was remarked at the time that these adjustments in South Africa were long overdue and a move in the right direction (Quinot, 2020: p. 3). Quinot (2020: p. 14) adds that government and civil society concerns, particularly the need for openness and the lack of ability to implement important aspects specified in the law, may mean that South Africans would have to wait even longer for it to be passed. Because the Regulator is formed with National Treasury under the new law, the new job of the Regulator is still susceptible to areas of corruption.

In their research on public procurement and corruption in South Africa, Klaaren, Belvedere, and Brunette Gray (2022: p. 2) highlight some crucial and vital issues. South Africa, like many other nations, relies significantly on its public procurement system, which is beset by corruption. Nonetheless, its regulatory systems for public procurement and anti-corruption are separate. Despite knowing of widespread corruption in the last decades of apartheid, anti-corruption was viewed as a secondary rather than a main goal in the early stages of post-apartheid reform and public procurement design. Norms against corruption in public procurement have generally taken the shape of criminal offences in the anti-corruption regime and administrative rules inside government within the public procurement system, neither of which has proven successful. The failure to pay attention to the intersection of these two regimes has created the possibility of more corruption in public procurement.

Given what has been discussed above, it is strongly suggested that the government of South Africa give serious consideration to the idea of establishing the key position of Minister of Public Procurement. This essential post has to be filled due to the regulatory legislation vacuum and the lack of oversight from the National Treasury. After that, all public institutions will be obligated to report to and receive input from this Ministry directly. There will be a larger degree of locus of control present. This new Ministry might look at enacting significant changes and

considering new reforms as a means of reducing the amount of corruption that exists in South Africa. The researcher is well aware that implementing this advice would include a significant amount of effort and shifts, but in the long run, implementing it will be to the national agenda of South Africa's great advantage.

A second proposal included in this new portfolio Ministry will be to establish standards of accountability that are even harsher. The process must be open enough to show how issues such as non-compliance, dishonesty, fraud, and collusion are being handled. Accountability is vital, those who have erred must be held responsible and the law will follow. In South Africa, there has been a notable increase in the number of instances in which government departments and law enforcement agencies have failed to properly investigate and prosecute situations in which there is proof of illegal activity. This brings up an extremely important topic of the best way to establish a culture of ethics, honesty, and accountability in the public service sector. It is essential to send a message to top managers or government ministers who have behaved inappropriately by either prosecuting them or firing them, as required by the rules governing the public sector.

The disturbing evidence that was provided during the Zondo Commission (2018-2022) demonstrated how deep and serious levels of corruption extended across the public sector. The findings of the commission's forensic investigation thus advised that the government of South Africa needs to create a public procurement monitoring board. This board will ultimately need to be equipped with trustworthy and accurate data from the state's procurement bodies in order to conduct effective supervision of the situation of public procurement in South Africa. The panel recommended that the only time South Africa can genuinely realise the benefits of the trustworthy reporting of procurement data would be after they have resolved the problems they have been having with the integrity of the data collecting. Adding further weight to the suggestion that a Minister of Public Procurement be appointed, is that the issues of corruption in public procurement will continue to exist so long as there is neither a functioning criminal justice system nor a culture in which government employees hold their colleagues accountable for their actions (Zondo Commission, 2018-2022).

7.4.4 Recommendation 4 – TECHNOLOGY

Given South Africa's present predicament with never-ending corruption, the reform of public procurement in the nation is an urgently required work that is essential for the efficient operation of the country. There are now several gaps in the dimensions of public procurement operations throughout the nation, both at the regulatory and operational levels across the majority of public institutions. These gaps may be found in both the operational and regulatory levels of public procurement. It is also important to note that the acquisition of government contracts might be vulnerable to political involvement or, at the very least, influence. Procurement that is both efficient and effective in preventing, detecting, and rectifying problems may catapult the nation to new heights and instil optimism in people.

The recording of data at each stage of the supply chain is an essential component of using procurement technology and automation as a significant way for gathering complete information. Automation and technology specifically designed for the task at hand are crucial in this regard. If these details are recorded accurately, companies will be able to make judgements that are more in line with reality, which will ease the burden of administration and free up more time for the employees working on those decisions. Companies in every region of the globe are speeding up their efforts to digitalise their businesses. The adoption of digital technology has the potential to confer significant advantages on the public sector. These advantages include the enhancement of transparency, the facilitation of public bids, the reduction of direct contact between procurement officials and companies, the promotion of competition, and the acceleration of the detection of irregularities and corrupt practices.

From the findings of the study, through the varied feedback from participants, it was uncovered that technology in public procurement at HEIs lack proper knowledge from staff to be able to make use of technology, absence of staff training, feeble technology systems or software that slow down the procurement process, unsatisfactory awareness of AI proving that AI type technologies are not integrated into efficient public procurement system technologies, surface-level use of e-procurement, in one HEI it was reported that e-procurement is not even used at all, and finally a non-existent specific focus procurement system/software. Hence, the final recommendation is to introduce a procurement-specific system that is tailored around software that can digitalise all procurement tasks with the use of AI types of technology. These AI types

of technologies that can be incorporated into a tailor-made procurement system will be inclusive of:

- A functional electronic procurement platform for the twenty-first century that either makes use of a web interface or some sort of HEI networked system that is designed to facilitate connections between suppliers and end users. At HEIs, it is recommended that the chief procurement officers (if the system is decentralised) or the central procurement department (if the system is centralised) be responsible for ensuring that the public procurement policies governing the e-procurement of materials for the HEI are adhered to properly. Efficient management of the specified parameters or constraints surrounding budgets and expenditures may be achieved using this method within the context of the e-procurement platform. An efficient e-procurement system will ensure that all manual processes are eliminated, and that all procurement-related tasks, such as exchanging supplier contracts and filling out supplier onboarding questionnaires, are completed electronically and saved on the e-procurement system. eAuctions and eTenders are two examples of these types of electronic processes. The time spent by employees may now be redirected to tasks that have a greater value. Efficient use of e-procurement would thus promote transparency and accountability within the public procurement process and provide greater control over the procurement function within the HEI.
- AI Software (including cloud computing), which will assure the speed and effectiveness of a higher-level ERP or SAP software being implemented into a particular procurement system. If the staff at HEIs effectively use the appropriate AI tools, procurement precision will grow. AI will enable individuals at HEIs to address complicated issues more efficiently or effectively by using intelligent computer algorithms. AI may be used in a variety of software applications in HEIs, including expenditure analysis, contract management, and strategic supplier procurement. AI may increase the possibility of streamlining or aligning internal business activities inside HEIs and campus locations. AI can automate numerous time-consuming tasks, thereby freeing up more time for all HEI procurement officers to focus on more strategic tasks, such as establishing an effective key supplier relationship management by physically conducting supplier visits and increasing employee training and development.

The digitisation of public procurement in South Africa is ready for a digital solution, now more than ever, and it must occur as quickly as possible as we are in the era of 4 IR. South Africa's public sector will only realise the benefits of the trustworthy publication of public procurement statistics after the government has resolved these problems. Digital technology can play a crucial role in enhancing the government's mandate to deliver, and intelligently digitalised procurement processes that rely on advancing technologies and are primarily focused on preventing such problems would be a significant step in the right direction for public procurement in South Africa.

7.5 FURTHER RESEARCH SUGGESTIONS

Given the vast and detailed challenges that have come out of this study's findings, further research is greatly recommended. Further suggestions for research are as follows:

- a. It is suggested that follow-up research be conducted using a variety of HEIs drawn from various provinces located within South Africa; this will allow for the completion of a comparison study. Further conclusions may be made about how higher education institutions (HEIs) are fulfilling their tasks differently and what precisely are the mechanisms for success or failure that are being employed by these institutions.
- b. An in-depth study can be conducted on the technological advancements made by HEIs in public procurement. This might be accomplished with HEIs that fit into the same categories, such as traditional, university of technologies, or comprehensive HEIs. Using these data, it may be possible to determine which HEIs are the most advanced based on their category in terms of technical improvements. Additionally, it will be much easier to identify those HEIs that are lagging behind, allowing for a more rapid transition.
- c. Additional study might enhance the current results by examining the preparedness and receptiveness of Higher Education Institutions (HEIs) towards adopting technologies similar to Artificial Intelligence (AI). An analogous investigation might be conducted by using supplementary research approaches and techniques to gather a greater volume of data and provide comprehensive analysis and perspectives from a novel standpoint.
- d. It is advisable for future research endeavours to gather more extensive data in order to comprehensively comprehend and assess the correlation between various procurement

actions and distinct forms of creative endeavours. Furthermore, it is suggested that future research endeavours investigate the potential impact of procedural tools on several other outcomes, such as government performance and levels of confidence.

7.6 LIMITATIONS OF THE STUDY

The limitations of this study were as follows:

- a) Admission and access to information and participants were difficult due to the confidentiality and sensitivity of the nature of the procurement information.
- b) There were other challenges that arose from the interviews that were conducted with staff and were not linked to procurement.
- c) The waiting periods of the online modes of interviews as working schedules proved to be an obstacle to getting people to sit down for a detailed interview, because of time constraints. To help solve this limitation, the researcher ensured that interviews are booked in advance and that diary invites were sent out, as well as reminders.
- d) Difficulties with the public procurement system have been highlighted via research of the literature and in-depth structured interviews with junior and senior management-level employees in KwaZulu-Natal, South Africa. It is possible that not all problems with the public procurement system were found.

7.7 CONCLUSION OF THE STUDY

The study provided several insights into the in-depth understanding of the public procurement technological operational and functional areas of its public procurement systems. The constructs of the study were unpacked in detail, which answered the main research question of the study, that being: *What are the challenges of the public procurement system experienced by selected public higher education institutions in South Africa (KZN), and how can these be overcome?* The detailed challenges were extensively discussed in Chapter 5, the study's recommendations and proposed developed conceptual model by the researcher have been put forward as to how these HEIs public system challenges can be overcome.

Effective public procurement systems may help governments spend with the value for money notion, reduce the strain that is placed on public budgets, and leave institutions better positioned to attract perhaps private investments. As of the limited availability of public monies, governments are constantly encouraged to invest with much thought. Increasing the efficiency of public procurement processes is beneficial to economic expansion, to all sectors of the country, including the private sector. Thereby raising an important question as to who should lead this digital transformation in the country? The answer to this question requires may aid HEIs in addressing these issues quickly.

In South Africa, it is a known fact that the government is the greatest purchaser of products and services. The quality of procurement results is determined by the ease with which the state can access the finest suppliers on the market who can provide the highest quality products and services. When properly managed, public procurement may be used strategically to expedite the government's development goal and guarantee that necessary commodities, services, and economic opportunities reach people who need them.

The OECD (2016: p.7), identifies public procurement as a foundation of strategic governance and emphasises its function as an important pillar of service delivery. This is particularly true in South Africa. The government plays a crucial role in the development of the majority of sectors by using its buying power and influence over the economy to provide job opportunities and propel economic growth. Through its extensive procurement processes, the South African government provides basic services and maintains important infrastructure like road networks, ports, and the rail system, and finances schools, higher education institutions, and public health facilities.

The uniqueness of the findings of this study will greatly assist in helping HEIs public procurement systems and processes move forward. This research is both descriptive and exploratory in nature. Whilst challenges exist globally, the findings of this study are relevant to HEIs within South Africa, KwaZulu-Natal, thus situations and circumstances differ and like understanding solutions may only apply to these challenges.

*Being part of the public sector and the government sector all employees have an important role to play in moving our beautiful country forward. As our **President, Mr. Cyril Ramaphosa** once said: “All public sector employees are to be seen as agents of change”, May all employees do things in their tiny little roles and in small ways to advance and develop the public sector of South Africa. Let us stand together and be proud of what we can achieve as a Nation.*

Nkosi Sikelel Afrika

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APPENDIX A:
EDITOR LETTER

EDITORIAL

CERTIFICATE

Author: Jayrusha Ramasamy Gurayah (981194636)

Document title: Public Procurement System Challenges at Selected Higher Education
Institutions in Kwazulu-Natal, South Africa

Date issued: 08/02/2023

This document certifies that the above manuscript was proofread and edited by
Prof Gift Mheta (PhD, Linguistics).

The document was edited for proper English language, grammar, punctuation, spelling and overall style. The editor endeavoured to ensure that the author's intended meaning was not altered during the review. All amendments were tracked with the Microsoft Word "Track Changes" feature. Therefore, the authors had the option to reject or accept each change individually.

Kind regards




Prof Gift Mheta (Cell: 073 954 8913)



APPENDIX B:
STATISTICIAN LETTER

Sachin Suknunan
Qualitative Statistical Analysis

(Cell): 078 170 4497
Email: suknunan.s30@gmail.com

**TO WHOM IT MAY
CONCERN**

Date: 8 February 2023

This serves to certify that I, Sachin Suknunan, have provided full qualitative data analysis services to one Jayrusha Ramasamy-Gurayah, on the qualitative data collected for her PHD study, in 2022.

Services rendered included:

- Alignment of interview schedule to research questions and objectives
- Reading of Interviews/Data
- Data cleansing and extraction
- Cluster, Word Frequency, Tree Mapping, Word Trees and Hierarchy Charts
- Node development and Coding of data
- Theme formulation
- Output of analysed data (into MS Word format)
- Observation Report

Analysis was done using NVIVO 20.

Should you have any queries whatsoever regarding the analysis, don't hesitate to contact me directly.

Sincerely,

Dr. Sachin Suknunan

(Qualitative data analyst/ Research consultant)

**APPENDIX C:
CONSENT FORM**

**UKZN HUMANITIES AND SOCIAL SCIENCES RESEARCH ETHICS
COMMITTEE (HSSREC)**

APPLICATION FOR ETHICS APPROVAL

For research with human participants

Information Sheet and Consent to Participate in Research

Date: 05 June 2022

Greetings,

My name is Jayrusha Ramasamy Gurayah from the School of Management, IT & Governance. My contact number is 0823052547, primary email address is: gurayahj@ukzn.ac.za. You are being invited to consider participating in a study that involves the following topic: ***Public procurement system challenges at selected higher education institutions in KwaZulu-Natal, South Africa***

The aim and purpose of this research is to identify and explore the challenges of public procurement systems at selected South African higher education institutions (HEIs). The study shall enable the universities to assist with the identification of ‘*contemporary*’ change to the public procurement system structure currently in place, through the analysis.

The study is expected to include 30 participants all of whom are located at the various campus sites. It will involve the following procedures: a one-on-one interview with selected participants - via Zoom; MS teams or Google Meets. The duration of your participation if you choose to participate and remain in the study is expected to be 40-45 minutes long. The study is funded by the researcher. The study may involve the following risks and/or discomforts (describe). We hope that the study will create the following benefits (describe if relevant; otherwise state that the study will provide no direct benefits to participants. Describe the scientific/other benefits hoped for from the study). The researcher must disclose in full any appropriate alternative procedures and treatment etc. that may serve as possible alternate options to study participation.

There are no risks or discomforts associated with this study. This study will not provide any direct benefits to participants. This study has been ethically reviewed and approved by the UKZN Humanities and Social Sciences Research Ethics Committee (approval number:). In the event of any problems or concerns/questions you may contact the researcher at 0760675741, or the UKZN Humanities & Social Sciences Research Ethics Committee, contact details as follows:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban 4000 KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604557- Fax: 27 31 2604609

Email: HSSREC@ukzn.ac.za

Your participation in the study is voluntary and by participating, you are granting the researcher permission to use your responses. You may refuse to participate or withdraw from the study at any time with no negative consequence. There will be no monetary gain from participating in the study. Your anonymity will be maintained by the researcher and the School of Management, I.T. & Governance and your responses will not be used for any purposes outside of this study.

All data, both electronic and hard copy, will be securely stored during the study and archived for 5 years. After this time, all data will be destroyed.

If you have any questions or concerns about participating in the study, please contact me or my research supervisor at the numbers listed above.

Sincerely,

Researcher

Mrs. JR Gurayah

981194636

0823052547

gurayahj@ukzn.ac.za

Research Supervisors

Supervisor:

Prof. Micheline JA Naude

Tel: 031 2602595 / 031 2606181

Email: NaudeM@ukzn.ac.za

Co-Supervisor:

Dr. T.P. Mbhele

Tel: Mbhelet@ukzn.ac.za

Email: 031 2607524

CONSENT TO PARTICIPATE

I (Name) have been informed about the study entitled: *Public procurement system challenges at selected higher education institutions in KwaZulu-Natal, South Africa* by Jayrusha Ramasamy Gurayah (981194636).

I understand the purpose and procedures of the study: *The aim and purpose of this research, is to identify and explore the challenges of public procurement systems at selected South African higher education institutions (HEIs). The study shall enable the universities to assist with the identification of 'contemporary' change to the public procurement system structure currently in place, through the analysis.*

I have been given an opportunity to ask questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting any of the benefits that I usually am entitled to.

I have been informed about any available compensation or medical treatment if injury occurs to me as a result of study-related procedures.

If I have any further questions/concerns or queries related to the study I understand that I may contact the researcher at:

Researcher
Mrs. JR Gurayah
981194636
0823052547
gurayahj@ukzn.ac.za

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers then I may contact:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION
Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001
Durban
4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604557 - Fax: 27 31 2604609
Email: HSSREC@ukzn.ac.za

Additional consent, where applicable

I hereby provide consent to:

| | |
|--|----------|
| Audio-record my interview / focus group discussion | YES / NO |
| Video-record my interview / focus group discussion | YES / NO |
| Use of my photographs for research purposes | YES / NO |

Signature of Participant

Date

**Signature of Witness
(Where applicable)**

Date

**Signature of Translator
(Where applicable)**

Date

APPENDIX D:
INTERVIEW SCHEDULE

School of Management, IT and Governance
PhD in Supply Chain Management 2022
Voluntary Interview Schedule

Supervisor:

Prof. Micheline JA Naude

Tel:

Email:

Student:

Jayrusha Ramasamy Gurayah

Cell: 0823052547/031-2608713

Email: 981194636@stu.ukzn.ac.za

Co-Supervisor:

Dr. T.P. Mbhele

Tel:

Email:

Research Office:

Marriette Synman

Tel: 0312608350

Email: snyman@ukzn.ac.za

Title:

Date of Interview: _____

Time of Interview: _____

Name of Interviewee:

Role in Company:

Demographic Information

Participant No:

Gender:

Highest Education Qualification Passed:

Public Procurement Experience:

Introduction

Over the last decade in South Africa, public procurement (PP) has evolved significantly and attracted much scholarly research interest. The challenges are a combination of various areas of concern in the public sector. With a combination of universities of technologies and comprehensive and traditional universities, procurement challenges vary. This requires identifying the maintenance of the appropriate functioning of the system. The study contemplates to interrogate the gap towards developing agile and resilient procurement systems to build flexibility and demand responsiveness to model the financial and operational viable procurement system.

The main aim of this study is to identify the public procurement challenges of the selected HEIs and to detail the public procurement system by focusing on the main constructs of the study: *people, process and technology*. The proper use of procurement can lead to better resource allocation and management, as this enables costs to be efficiently managed and the goals of the organisation to be achieved. I look forward to interviewing you. In addition, I hope to learn from your experiences and insights regarding the public procurement system at your HEI.

SECTION 1 – General Questions

1. How many years have you worked at this HEI?
2. What do you understand by the term '*public procurement*'?
3. Describe the *procurement process* that is being used at this HEI.
4. Clearly outline the type of *public procurement system* that is being used at this HEI.
5. Describe the supplier relationship management process at this HEI.

SECTION 2 – People

1. What are the KEY public procurement system challenges that you have experienced in your job at your HEI, in the last three to four years?
2. As an employee, how *adaptive* are you in your job/role, on changing work environments? (Describe with a possible example)
3. What are the *innovative* procurement processes that are being used in your job/role? Describe any obstacles to this innovation.
4. Identify your five strongest *capabilities* in your job/role and what are the challenges that may hinder your capabilities.

SECTION 3 – Process

1. Do you think public procurement policies and principles are an important part of the HEI procurement system? Why?
2. Does this HEI have a procurement policy in place and how old is the policy? Describe its effectiveness in the current procurement process.
3. What are the main procurement principles that are followed at this institution?
4. How do the public procurement policies and principles influence operational processes in terms of:
 - a) *Agility*,
 - b) *Flexibility*
 - c) and *Responsiveness*?

SECTION 4 – Technology

1. At this HEI, how do Technological Advancements influence the Public Procurement environment (in terms of procurement policy, procedures, employee size and operation processes) setting?
2. At this HEI, how do Technological Advancements influence the Public Procurement organisational (in terms of leadership from top management, centralised and decentralised procurement, employee - human resources and communication processes) setting?
3. Define the technological challenges that can/may influence the public procurement process at this HEI.
4. What recommendations would you make to alleviate the main barriers to proper technological implementations in the public procurement system at this HEI?
5. If you are looking into this opportunity of technology advancement, how best would you ensure 4IR type of technologies, (e,g cloud computing, IoT and artificial intelligence etc.) then improve the efficiency and effectiveness of the procurement system at this HEI?

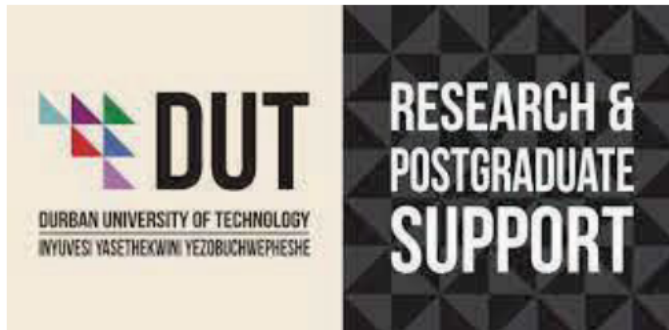
Consent

I _____ (Full names of participant) hereby confirm that I understand the contents of this document and the nature of the research project and I consent to participating in the research project. I understand that I am at liberty to withdraw from the project at any time, should I so desire.

SIGNATURE OF PARTICIPANT

DATE

APPENDIX E1:
GATEKEEPER LETTER: DUT



*Directorate for Research and Postgraduate Support
Durban University of
Technology Tromso Annexe,
Steve Biko Campus
P.O. Box 1334, Durban 4000
Tel.: 031-
3732576/
7 Fax:
031-
3732946*

12th July 2022

Mrs Jayrusha Ramasamy Gurayah
c/o College of Law and Management Studies
School of Management, Information Technology and Govern
University of KwaZulu-Natal

Dear Mrs Ramasamy Gurayah

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 “Public procurement system challenges at selected higher education institutions in KwaZulu-Natal, South Africa” at the Durban University of Technology.

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.

We would be grateful if a summary of your key research findings would be submitted to the IRIC on completion of your studies.

Kind regards.
Yours sincerely

A black rectangular box used to redact the signature of Prof. KEO MOTAUNG.

PROF. KEO MOTAUNG
ACTING-DIRECTOR: RESEARCH AND POSTGRADUATE SUPPORT DIRECTORATE

APPENDIX E2:

GATEKEEPER LETTER: UKZN



1 June 2022

Miss Jayrusha Ramasamy-Gurayah (SN 981194636) School
of Management, IT & Governance
College of Law and Management Studies Westville
Campus UKZN
Email: gurayahj@ukzn.ac.za

Dear Miss Ramasamy-Gurayah

RE: PERMISSION TO CONDUCT RESEARCH

Gatekeeper's permission is hereby granted for you to conduct research at the University of KwaZulu-Natal (UKZN), towards your postgraduate degree, provided Ethical clearance has been obtained. We note the title of your research project is:

"Public procurement system challenges at selected higher education institutions in KwaZulu-Natal, South Africa."

It is noted that you will be constituting your sample by conducting interviews with staff that work in Central Procurement and Finance, Colleges within Procurement and Finance Division (Zoom, Skype or telephone interviews recommended) at UKZN.

Please ensure that the following appears on your notice/questionnaire:

- Ethical clearance number;
- Research title and details of the research, the researcher and the supervisor;
- Consent form is attached to the notice/questionnaire and to be signed by user before he/she fills in questionnaire;
- gatekeepers approval by the Registrar.

You are not authorized to contact staff and students using the 'Microsoft Outlook' address book. Identity numbers and email addresses of individuals are not a matter of public record and are protected according to Section 14 of the South African Constitution, as well as the Protection of Public Information Act. For the release of such information over to yourself for research purposes, the University of KwaZulu-Natal will need express consent from the relevant data subjects. Data collected must be treated with due confidentiality and anonymity.

Yours sincerely

Dr KE CLELAND: REGISTRAR

Office of the Registrar

Postal Address: Private Bag X54001, Durban, 4000, South Africa

Telephone: +27 (0)31 260 7971 Email: registrar@ukzn.ac.za Website: www.ukzn.ac.za

Founding Campuses: Edgewood Howard College Medical School Pietermaritzburg Westville

APPENDIX E3:
GATEKEEPER LETTER: UNIZULU



University of Zululand, Private Bag X1001, KwaDlangezwa, 3886

W: www.unizulu.ac.za

T: +27 35 902 6434

E: MothilalID@unizulu.ac.za

Office of the Registrar

Our ref: Permit: 32/2022
2022 Your ref:

25 August

PERMIT TO COLLECT DATA

The University of Zululand hereby permits Mrs. JR Gurayah to conduct research and collect data in accordance with his Ethics Clearance Certificate HSSREC/00004429/2022 issued by the University of KwaZulu Natal dated 8 July 2022, and UNIZULU's POPI Declaration and Indemnity form dated 10 July 2022.

The Researcher may commence with data collection from the date of this Permit. This permit is valid for 12 months from date of issue.

UNIZULU retains the right to withdraw or amend this permit if:

- Any unethical conduct is revealed or suspected.
- Relevant information has been withheld or misrepresented.
- Regulatory changes of whatsoever nature so require.
- The conditions contained in the Declaration have not been adhered to.



**D MOTHILALL
REGISTRAR**

APPENDIX F:
ETHICAL CLEARANCE LETTER



08 July 2022

Jayrusha Ramasamy
(981194636)
School Of Man Info Tech &
Gov
Westville Campus

Dear J Ramasamy,

Protocol reference number: HSSREC/00004429/2022 —

Project title: Public procurement system challenges at selected higher education institutions in KwaZulu-Natal, South Africa

Degree: PhD

Approval Notification Expedited Application

This letter serves to notify you that your application received on 29 June 2022 in connection with the above, was reviewed by the Humanities and Social Sciences Research Ethics Committee (HSSREC) and the protocol has been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number. PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

This approval is valid until 08 July 2023.

To ensure uninterrupted approval of this study beyond the approval expiry date, a progress report must be submitted to the Research Office on the appropriate form 2 - 3 months before the expiry date. A close-out report to be submitted when study is finished.

HSSREC is registered with the South African National Research Ethics Council (REC-040414-

040). Yours sincerely,

Professor Dipane Hlalele (Chair)

/dd

Humanities and Social Sciences Research Ethics Committee

Postal Address: Private Bag X54001, Durban, 4000, South Africa

Telephone: +27 (0)31 260 8350/4557/3587 **Email:** hssrec@ukzn.ac.za **Website:** <http://research.ukzn.ac.za/Research-Ethics>

Founding Campuses: ■ Edgewood ■ Howard College ■ Medical School ■ Pietermaritzburg ■ Westville

INSPIRING GREATNESS