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OPTIMIZING PUBLIC PROCUREMENT FRAMEWORKS FOR ENHANCED HEALTHCARE DELIVERY IN ZIMBABWE'S CENTRAL HOSPITALS BY

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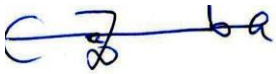
Supervisor: Prof E. Ziramba Signature:  Date: 21/06/26

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DECLARATION

I, Collen Rutsate Student Reg Number B252007A do hereby declare that this dissertation is a result of my own investigation and research, except to the extent indicated in the acknowledgments, bibliography, references, and comments included in the body of the report, and that it has not been submitted in part or in full for any other degree to any other university.



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DEDICATION

I dedicate this thesis and a special feeling of gratitude to my wonderful family and children

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Special recognition goes to my project supervisor who was always available to hand hold me throughout this Master Thesis. Secondly, I wish to extent my sincere acknowledgement and appreciation to all the stakeholders that participated in this research.

ABSTRACT

This study investigated how public procurement frameworks could be optimized to enhance healthcare delivery in Zimbabwe's central hospitals, focusing on Parirenyatwa Group of Hospitals, Sally Mugabe Central Hospital, Chitungwiza Central Hospital, and the Procurement Regulatory Authority of Zimbabwe and Ministry of Health and Child Care. Despite enactment of the Public Procurement and Disposal of Public Assets Act (Chapter 22:23), central hospitals continue to face chronic drug and surgical sundry shortages, a high maternal mortality ratio, and recurrent cancellation of surgeries. The study pursued three objectives: to explore the effect of procurement regulatory frameworks on timely delivery of medical supplies; to evaluate the effect of procurement procedural competitiveness on the health sector; and to design a digitalized procurement optimization framework for cost-effective resource acquisition and healthcare delivery. Anchored in a pragmatist philosophy, the study adopted an concurrent mixed-methods design, integrating a quantitative survey of 178 respondents (86.8% response rate) with twenty semi-structured key informant interviews, analyzed using descriptive statistics, Spearman's correlation, multiple regression, and thematic analysis, underpinned by an integrated Digitalized Institutional-Resource-Agency (DIRA) framework synthesizing Institutional Theory, Agency Theory, and the Resource-Based View. All three hypotheses were confirmed: regulatory rigidity correlated negatively with timely supply delivery ($r_s = -0.612$, $p < 0.001$); competitiveness deficits correlated negatively with delivery quality ($r_s = -0.584$, $p < 0.001$); and digitalization readiness showed the strongest relationship ($r_s = +0.673$, $p < 0.001$; $\beta = +0.412$), with the predictors jointly explaining 58.7% of variance ($R^2 = 0.587$). Qualitative findings triangulated these results, surfacing a compliance-over-outcomes culture, digital infrastructure deficits, and a legislative gap exposing hospitals to audit risk. The study proposes the DIRA-O Framework, comprising Institutional Reform, Resource Development, and Agency Transparency, and recommends amending the PPDPA Act to regulate e-procurement, a fast-track procurement pathway, reformed performance management, phased ICT investment, and an integrated e-government procurement platform, contributing theoretically, methodologically, and practically to procurement governance reform.

Keywords**:** Public procurement; PPDPA Act; Healthcare delivery; Central hospitals; Digitalized Procurement;

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List of ABBREVIATIONS:

PRAZ — Procurement Regulatory Authority of Zimbabwe

PPDPA Act — Public Procurement and Disposal of Public Assets Act (Chapter 22:23)

UHC- Universal Health Coverage

CHAPTER ONE: INTRODUCTION

1.1 Introduction

The modern business environment has transformed the procurement function from a traditional, cost-cutting administrative task into a strategic, value-creating interface that is central to organizational success and stakeholder satisfaction. This shift is particularly critical in the public sector, where the efficiency of procurement frameworks directly determines the quality of essential services, such as healthcare delivery. In Zimbabwe, the optimization of public procurement frameworks in central hospitals is not merely an operational necessity but a critical requirement for addressing persistent challenges in medical supply availability and improving health outcomes. This study explores the impact of the Public Procurement and Disposal of Public Assets (PPDPA) Act on healthcare delivery, aiming to develop an integrated framework that enhances the efficiency and responsiveness of the procurement process in the nation's quaternary health institutions.

1.2 Background of the Study

The background of this study is rooted in the critical intersection of public procurement efficiency and the effectiveness of healthcare delivery systems. Efficient procurement is a primary enabler of healthcare delivery, ensuring the continuous and timely supply of essential medical commodities, from life-saving drugs to surgical equipment. Globally, statistics indicate that procurement accounts for a substantial portion of health sector spending, often ranging from 30% to 50% of total health budgets in many countries (WHO, 2025). When managed effectively, procurement frameworks facilitate the acquisition of high-quality medical supplies at competitive prices, thereby maximizing the impact of limited health resources. Scholars such as Kasim (2026) emphasize that the provision of high-quality healthcare services depends fundamentally on the efficient management of drug procurement and the robustness of the associated supply chains.

However, the reality in many developing economies presents a stark contrast to this ideal. In countries like Bangladesh and Malawi, procurement inefficiencies have been cited as a major cause of downward trends in healthcare delivery. Statistics from these regions show that procurement delays and bureaucratic bottlenecks can lead to stock-out rates of essential medicines exceeding 40% in public health facilities (WHO, 2025). In Malawi, for instance, the lack of flexibility in the procurement act has been linked to significant delays in the acquisition of maternal health supplies, contributing to high mortality rates. This situation underscores the importance of studying procurement frameworks, as the failure to optimize these systems leads to tangible human

costs, including preventable deaths and a general decline in the quality of care provided to the public.

Global case studies provide further insights into the effects of public procurement acts on healthcare delivery. In Brazil, the implementation of centralized procurement models has been praised for achieving economies of scale and reducing the prices of antiretroviral drugs, yet scholars like Fonseca (2026) point out that these same models can lead to logistical bottlenecks and a lack of responsiveness to local health needs. Similarly, in Mexico, reforms aimed at increasing transparency through the use of electronic procurement platforms have shown success in reducing corruption, but disagreements remain among scholars regarding the impact of these reforms on the speed of emergency medical acquisitions (Kasim, 2026). These global experiences highlight a consistent tension between the need for regulatory control and the requirement for operational flexibility, a theme that is highly relevant to the Zimbabwean context where the PPDPA Act governs all public acquisitions.

Regionally, the experiences of South Africa and Zambia offer cautionary tales regarding the impact of procurement scandals and leakages on healthcare. In South Africa, the R2 billion procurement fraud at Tembisa Hospital exposed in 2025-2026 illustrates how syndicates can exploit procurement loopholes, leading to the misappropriation of funds meant for critical health services (African Antitrust, 2026). In Zambia, the Zambia Medicines and Medical Supplies Agency (ZAMMSA) has faced similar challenges, where scandals involving the procurement of substandard medical supplies have compromised patient safety and eroded public trust (Muchimba & Kelvin, 2024). These regional case studies demonstrate that even with robust legislative frameworks in place, the lack of effective oversight and the presence of bureaucratic inefficiencies can lead to severe leakages that cripple healthcare delivery.

1.2.1 Poor Healthcare Delivery in Zimbabwe's Central Hospitals

The state of healthcare delivery in Zimbabwe's central hospitals has reached a critical juncture, characterized by a persistent decline in the quality and availability of essential services. Central hospitals, which serve as the quaternary level of the national referral system, are intended to provide specialized care that is unavailable at primary and secondary facilities. However, these institutions are currently grappling with a severe lack of basic medical facilities, surgical sundries, and life-saving drugs. According to Musarandega (2022), the deterioration of the healthcare

system is deeply intertwined with the country's broader economic challenges, yet the specific role of procurement inefficiencies in exacerbating these conditions cannot be overstated. The lack of functional diagnostic equipment, such as MRI and CT scanners, in major institutions like Parirenyatwa and Sally Mugabe Central Hospital often forces patients to seek expensive private alternatives or forgo treatment altogether (Zhavairo & Jerie, 2026).

A particularly distressing indicator of the poor state of healthcare delivery is the high rate of maternal mortality within these public institutions. While global trends have seen a significant reduction in maternal deaths, Zimbabwe's progress has been inconsistent and remains far below the Sustainable Development Goal (SDG) 3.1 target of less than 70 deaths per 100,000 live births. Busumani (2021) highlights that maternal mortality in Zimbabwe remains pervasive, with many women opting for community deliveries due to the negative perceptions of care quality in public facilities. The period between 2015 and 2019 is particularly noteworthy as it marked a transition point in the country's health financing and procurement strategies. During this time, despite some fluctuations, the maternal mortality ratio remained alarmingly high, reflecting the systemic failures in the procurement of essential maternal health commodities such as oxytocin and blood products.

Table 1.1: Maternal Mortality Ratio (MMR) in Zimbabwe Public Hospitals (2014-2015)

Year	Maternal Mortality Ratio (per 100,000 live births)	Key Contributing Factors	Source
2015	614	Shortage of skilled birth attendants, lack of emergency obstetric care supplies.	WHO (2021)
2019	651	Increased stock-outs of essential drugs, delays in referral systems.	CEIC Data (2022)

Source; WHO (2021) and CEIC Data (2022)

The statistics presented in Table 1.2 demonstrate that maternal health outcomes in Zimbabwe's public hospitals are not only poor but have shown periods of regression. The increase from 614 in 2015 to 651 in 2019, as reported by CEIC Data (2022), underscores the volatility of the health system and its vulnerability to supply chain disruptions. Musarandega (2022) argue that these deaths are largely preventable if the procurement system is optimized to ensure the "three delays"

delay in seeking care, delay in reaching care, and delay in receiving care are addressed. In central hospitals, the "delay in receiving care" is often a direct result of the unavailability of the necessary medical resources, which is a failure of the procurement function to respond to the urgent needs of the maternity wards.

Furthermore, the state of healthcare delivery is compromised by the physical condition of the hospitals themselves. Many central hospitals are operating with archaic infrastructure that has not seen significant investment or maintenance for decades. This lack of facilities extends to basic amenities such as clean water and reliable electricity, which are essential for the safe conduct of medical procedures. As noted by Dibie and Khunoethe (2025), the National Health Strategy 2021-2025 acknowledges these gaps but struggles to address them due to the persistent leakages in the procurement process. The lack of a robust and transparent procurement framework means that even when funds are allocated for infrastructural improvements, they are often diverted or mismanaged, leaving the hospitals in a state of disrepair.

1.2.2 Procurement Manipulation and Medical Supply Shortages

The manipulation of the public procurement process by hospital officials and other stakeholders is a significant factor contributing to the poor healthcare delivery in Zimbabwe's central hospitals. The Public Procurement and Disposal of Public Assets (PPDPA) Act, which was enacted to promote transparency and accountability, has unfortunately been subject to various forms of exploitation. Scholars such as Muchimba and Kelvin (2024) have highlighted that unethical leadership and the lack of robust oversight mechanisms allow for the manipulation of tender processes, leading to the misappropriation of funds meant for critical medical supplies. In some cases, officials may deliberately create artificial shortages or bypass standard procedures to award contracts to preferred suppliers, often at inflated prices. This phenomenon is not unique to Zimbabwe but is particularly damaging in a resource-constrained environment where every dollar spent on procurement must yield maximum value.

The manipulation of the procurement act takes many forms, including the use of restrictive tender specifications, the splitting of contracts to avoid threshold requirements, and the direct solicitation of bribes from potential suppliers. These practices are often facilitated by the manual and opaque nature of the current procurement systems in many central hospitals. According to a report by Transparency International Zimbabwe (TIZ) in 2021, the public health sector is particularly

vulnerable to corruption due to the high value and complexity of medical procurement. The report highlights that missing documentation and the lack of competitive bidding are common indicators of procurement manipulation. Table 1.2 below summarizes some documented cases of procurement manipulation and their impact on healthcare delivery.

Table 1.2: Documented Cases of Procurement Manipulation in Zimbabwe's Public Health Sector

Case Study / Incident	**Year**	**Nature of Manipulation**	**Impact on Healthcare Delivery**	**Source**
NatPharm e-Procurement Delay	2023	Resistance to implementing electronic procurement systems to maintain manual control.	Increased stock-outs of essential drugs due to slow and opaque processes.	Sithole (2023)
Central Hospital Medical Supply Scandal	2024	Awarding contracts to unregistered and incapable suppliers for surgical sundries.	Delivery of substandard medical supplies, compromising patient safety.	TIZ (2021/2024)
Tembisa Hospital Procurement Fraud (Regional Reference)	2025-2026	R2 billion misappropriated through nine syndicates using manipulated tender processes.	Massive drain on health resources, leading to severe shortages of life-saving equipment.	African Antitrust (2026)

Case Study / Incident	Year	Nature of Manipulation	Impact on Healthcare Delivery	Source
PSMAS Financial Mismanagement	2024	US$40 million misappropriated through archaic and easily manipulated paper-based systems.	Reduced access to healthcare for thousands of civil servants and their families.	Ngwenya et al (2024)

Source: (Ngwenya et al., 2024)

The cases presented in Table 1.3 illustrate the pervasive nature of procurement manipulation and its direct link to the degradation of healthcare services. When funds meant for medical supplies are diverted through corrupt practices, the immediate result is a shortage of essential drugs and equipment. Statistics from recent years indicate that the availability of essential medicines in Zimbabwe's public health facilities has consistently fallen below the required levels. According to Chari (2025), drug stock-outs are particularly high in facilities that experience long lead times for drug delivery, a problem that is often exacerbated by procurement inefficiencies and manipulation. In some central hospitals, the availability of essential drugs has been reported to be as low as 30% to 50% of the required stock levels (Gonah, 2026).

The impact of these shortages on healthcare in Zimbabwe is profound and far-reaching. Without a reliable supply of essential drugs and surgical sundries, central hospitals are unable to provide basic care, let alone specialized treatments. This leads to increased morbidity and mortality, as patients are unable to receive the necessary interventions in a timely manner. For example, the lack of anesthetic drugs and sterile equipment often leads to the cancellation of elective and even emergency surgeries, further straining the already overburdened health system. As Ogbodu (2025) notes, the shortage of medical supplies also places an immense emotional and physical burden on healthcare workers, who are forced to work in substandard conditions with limited resources.

Furthermore, the lack of medical supplies has a disproportionate impact on vulnerable populations, including women and children. The high maternal mortality rates discussed in the previous section are a direct consequence of the unavailability of emergency obstetric care supplies. Similarly, the

lack of pediatric medications and vaccines compromises the health and well-being of the next generation. The situation is further complicated by the fact that patients are often forced to purchase their own medical supplies from private pharmacies at exorbitant prices, leading to catastrophic health expenditures and pushing many families into poverty (Gonah, 2026). This directly contradicts the goal of Universal Health Coverage (UHC), which aims to ensure that all people have access to the health services they need without suffering financial hardship.

1.2.3 Impact of Procurement Inefficiency on Healthcare Outcomes in Zimbabwe

The cumulative impact of procurement inefficiency on healthcare outcomes in Zimbabwe is profound, manifesting as a systemic crisis that affects every level of the quaternary referral system. The central hospitals, which are supposed to be the pinnacle of medical excellence in the country, have instead become symbols of the failure of public procurement to support the most basic health needs of the population. According to Chipunza and Nhamo (2023), the bureaucratic bottlenecks and the manual nature of the procurement process under the PPDPA Act have created a situation where the acquisition of essential medical supplies is consistently delayed, leading to a breakdown in service delivery. This inefficiency is not just an administrative problem; it is a direct contributor to the high morbidity and mortality rates observed in Zimbabwe's public health sector.

One of the most visible impacts of procurement inefficiency is the high rate of maternal mortality, as discussed in the previous sections. The lack of emergency obstetric care supplies, such as oxytocin, magnesium sulfate, and blood products, is a direct consequence of the failure of the procurement system to respond to the urgent needs of the maternity wards. Musarandega (2022) highlights that many maternal deaths in Zimbabwe are preventable if the necessary medical resources are available at the point of care. However, the current procurement frameworks often prioritize regulatory compliance over operational responsiveness, leading to a situation where the "right" procedures are followed but the "wrong" outcomes are achieved. This tension between the need for control and the requirement for speed is a central challenge in the optimization of public procurement for healthcare delivery.

The impact of procurement inefficiency also extends to the management of chronic diseases and the provision of surgical services. The shortage of essential medicines for hypertension and diabetes, as noted by Gonah (2026), has led to increased complications and hospitalizations for patients who are unable to access their medication. In central hospitals, the lack of anesthetic drugs

and sterile surgical equipment has resulted in the cancellation of thousands of surgeries each year, leading to a massive backlog of patients who are left in pain and at risk of further complications. This situation is further exacerbated by the lack of functional diagnostic equipment, which is often a result of the failure of the procurement system to manage complex equipment maintenance and replacement contracts (Zhavairo & Jerie, 2026).

Furthermore, the poor state of healthcare delivery in central hospitals has led to a significant loss of public trust in the national health system. Many patients now view public hospitals as a place of last resort, where they are unlikely to receive the care they need due to the lack of medical supplies and facilities. This perception has led to an increase in community-based deliveries and the use of traditional medicine, which can often be unsafe and lead to further health complications (Busumani, 2021). The erosion of trust in the public health system also has long-term implications for the sustainability of health financing, as citizens are less likely to support national health insurance schemes if they do not believe they will receive quality care in return (Haabazoka, 2024).

Table 1.3: Impact of Procurement Inefficiency on Healthcare Outcomes in Zimbabwe

Area of Impact	**Procurement-Related Cause**	**Resulting Health Outcome**
Maternal Health	Shortage of emergency obstetric care supplies (e.g., oxytocin, blood).	High maternal mortality ratio (614-651 per 100,000 live births).
Surgical Services	Lack of anesthetic drugs and sterile surgical equipment.	Cancellation of elective and emergency surgeries, increased surgical backlog.
Chronic Disease Management	Stock-outs of essential medicines for hypertension and diabetes.	Increased complications, hospitalizations, and premature deaths.

Area of Impact	Procurement-Related Cause	Resulting Health Outcome
Diagnostic Services	Failure of equipment maintenance and replacement contracts.	Inability to diagnose and treat complex medical conditions accurately.
Public Trust	Persistent lack of medical supplies and poor service quality.	Increased use of unsafe community-based care and traditional medicine.

Source; (Haabazoka, 2024).

Procurement fits into this crisis as the primary mechanism for resource acquisition; however, the current procedures are often described as being too rigid to handle the urgent needs of a quaternary hospital. As Chimberengwa (2022) highlights, while the resources might sometimes be available in the national budget, the bureaucratic process does not allow for the urgent purchases necessary to save lives in emergency situations. The Public Procurement and Disposal of Public Assets (PPDPA) Act was enacted with the intention of promoting transparency, accountability, and efficiency in the supply of goods and services to public institutions. The Act contains several provisions designed to ensure that public funds are used effectively, as summarized in the table below.

Table 1.4: Main Provisions of the PPDPA Act for Efficient Healthcare Supply

Provision	Description and Intent	Impact on Healthcare Delivery
Competitive Bidding	Requirement for open tenders to ensure the best value for money.	Aims to reduce the cost of medical supplies through competition.
Supplier Registration	Mandatory registration of suppliers with the Procurement Regulatory Authority of Zimbabwe (PRAZ).	Intended to ensure that only reputable and capable suppliers provide medical goods.

Provision	Description and Intent	Impact on Healthcare Delivery
Procurement Planning	Requirement for annual procurement plans to be submitted and approved.	Aims to prevent ad-hoc purchasing and ensure a steady supply of essential drugs.
Transparency and Disclosure	Mandatory publication of tender awards and procurement contracts.	Designed to reduce corruption and leakages in the acquisition of medical equipment.
Standardized Bidding Documents	Use of uniform documents for all public procurement processes.	Intended to simplify the process and reduce errors in the acquisition of surgical sundries.

Source: (Chimberengwa, 2022)

Despite these well-intentioned provisions, the practical execution of the PPDPA Act within Zimbabwe's resource-constrained healthcare environment has revealed significant gaps. The need for this study arises from the urgent requirement to reconcile the Act's regulatory demands with the operational realities of central hospitals. By conducting a comprehensive examination of these frameworks, the study aims to identify the specific bottlenecks that impede the timely delivery of medical supplies and to design a digitalized optimization framework that can enhance the responsiveness of the system. As the Minister of Health and Child Care, Chimwaza (2022), noted, the unavailability of drugs in public hospitals is a direct consequence of procurement procedures that adversely affect the delivery system. This research is therefore essential for providing the evidence-based recommendations needed to transform Zimbabwe's public procurement from a bottleneck into a catalyst for improved healthcare delivery.

1.2 Problem Statement

Despite the implementation of the Public Procurement and Disposal of Public Assets (PPDPA) Act in Zimbabwe, central hospitals continue to face persistent challenges in medical supply availability and service quality due to bureaucratic inefficiencies, manual procurement processes, and limited regulatory flexibility (Mayavo, 2023, Chipunza and Nhamo, 2023). These challenges have led to a critical shortage of essential drugs and surgical sundries, directly impacting the ability

of quaternary hospitals to provide life-saving care. The problem is further compounded by the high maternal mortality ratio in Zimbabwe's public hospitals, which remains at a staggering 614 per 100,000 live births per year, according to reports by the World Health Organization (WHO, 2022). In this context, procurement plays a pivotal role in reducing the maternal mortality ratio by ensuring the timely availability of medical resources. However, the current procurement frameworks have been identified as a significant barrier rather than an enabler of this goal. The problem is fundamentally attributed to the rigid and often cumbersome nature of the PPDPA Act, which does not sufficiently account for the emergency and specialized needs of the healthcare sector. Evidence from recent reports suggests that the time taken to complete a standard procurement cycle often exceeds the shelf-life of certain perishable medical supplies, leading to wastage and stock-outs (Wang, 2025). Furthermore, the manual nature of the procurement processes in many central hospitals introduces delays and increases the likelihood of human error and corruption. These recognizable effects are manifested in the frequent cancellation of surgeries, the unavailability of basic pain medication, and the overall decline in patient trust in the public health system. The knowledge gap that this study seeks to close lies in the scholarly discourse concerning the discrepancy between procurement policy reform and its practical execution within resource-constrained healthcare environments. While the PPDPA Act was intended to promote transparency and accountability, its impact on the operational efficiency of central hospitals has not been adequately explored in the Zimbabwean context. There is a lack of empirical research that specifically examines how digitalized procurement optimization frameworks can bridge the gap between regulatory compliance and healthcare delivery performance. By addressing this gap, the study aims to provide a comprehensive understanding of the procurement-related factors that compromise the attainment of Universal Health Coverage (UHC) in Zimbabwe. This research is therefore anchored in the need to develop a more responsive and technologically integrated procurement framework that can meet the urgent and complex demands of the nation's central hospitals.

1.4 Research Objectives

The primary aim of this study is to optimize public procurement frameworks to enhance healthcare delivery in Zimbabwe's central hospitals. Specifically, the study seeks to achieve the following objectives:

1. To explore the existing procurement regulatory frameworks' effect on the timely delivery of essential medical supplies in central hospitals.
2. To evaluate the competitiveness of the procurement procedures' effect on the health sector.
3. To design a digitalized procurement optimization framework that improves the cost-effectiveness of medical resource acquisition and enhances healthcare delivery in Zimbabwe's central hospitals.

1.5 Research Questions

1. How do the existing procurement regulatory frameworks affect the timely delivery of essential medical supplies in Zimbabwe's central hospitals?
2. To what extent do the current procurement procedures in the health sector impact competitiveness and overall efficiency?
3. How can a digitalized procurement optimization framework be designed to improve cost-effectiveness and healthcare delivery in central hospitals?

1.6 Hypotheses

Based on the identified problem and research questions, the following hypotheses will guide this study:

1. **H_1**: Inefficient public procurement regulatory frameworks significantly impede the timely delivery of essential medical supplies to central hospitals in Zimbabwe.
2. **H_2**: The current procurement procedures in Zimbabwe's health sector negatively impact competitiveness and overall efficiency, leading to suboptimal healthcare delivery.
3. **H_3**: The implementation of a digitalized procurement optimization framework will significantly improve the cost-effectiveness of medical resource acquisition and enhance healthcare delivery in Zimbabwe's central hospitals.

1.7 Research Justification and Significance

The justification for this study is rooted in the urgent need to address the systemic inefficiencies within Zimbabwe's public procurement frameworks that directly compromise healthcare delivery. In a country where central hospitals are the quaternary level of the health referral system, any delay in the procurement of essential medical supplies can have catastrophic consequences for patient outcomes. As Chimberengwa (2022) observes, the current procurement procedures often act as a significant barrier to the provision of quality healthcare, particularly in emergency situations where

the speed of resource acquisition is paramount. This study is significant because it seeks to provide empirical evidence on the specific bottlenecks within the PPDPA Act and to propose a digitalized optimization framework that can enhance the responsiveness of the system. By addressing these issues, the research contributes directly to the national goal of achieving Universal Health Coverage (UHC) and reducing the high maternal mortality ratio that currently plagues the public health sector.

The significance of this study extends to several key stakeholders, including policymakers, hospital administrators, and the general public. For policymakers at the Procurement Regulatory Authority of Zimbabwe (PRAZ) and the Ministry of Health and Child Care, the findings provide a basis for refining procurement regulations to better suit the unique and urgent needs of the health sector. For hospital administrators, the proposed digitalized framework offers a practical tool for improving the efficiency of medical supply acquisition and reducing the incidence of stock-outs. Furthermore, the study contributes to the academic body of knowledge by filling a critical gap in the literature regarding the intersection of procurement reform and healthcare delivery in resource-constrained environments. Ultimately, the most significant impact of this research is on the patients who rely on central hospitals for life-saving care, as the optimization of procurement frameworks is a fundamental step toward ensuring that essential medical resources are available when and where they are needed most.

1.8 Assumptions

This study is based on several key assumptions that are essential for the validity and feasibility of the research. First, it is assumed that the participants, including procurement officers, hospital administrators, and medical staff at the selected central hospitals, will provide honest and accurate information regarding their experiences with the PPDPA Act and its impact on healthcare delivery. This assumption is critical as the study relies heavily on the perceptions and insights of those who are directly involved in the procurement process. Saunders, Lewis, and Thornhill (2023) emphasize that the reliability of research findings in organizational studies is often dependent on the transparency and cooperation of the participants. To mitigate any potential bias, the researcher ensures that all responses are kept confidential and that participants are fully informed of the study's academic purpose.

Second, , it is assumed that the selected central hospitals are representative of the broader public health system in Zimbabwe, allowing for the findings to be generalized to other similar institutions.

This assumption is supported by the fact that all central hospitals operate under the same regulatory and budgetary constraints, facing similar challenges in medical supply availability and service quality. Finally, the study assumes that the implementation of a digitalized procurement framework is a feasible and potentially effective solution for addressing the identified inefficiencies, an assumption that is grounded in the global trend toward e-procurement in the public sector (Mayavo, 2023).

1.9 Delimitation of the Study

The delimitation of this study defines the boundaries within which the research is conducted, ensuring that the scope is manageable and focused on the core research problem. Geographically, the study is delimited to the central hospitals in Zimbabwe, specifically focusing on major institutions such as Parirenyatwa Group of Hospitals and Sally Mugabe Central Hospital in Harare. These quaternary hospitals are the most appropriate sites for the research as they handle the most complex medical cases and have the highest demand for specialized medical supplies, making them particularly sensitive to procurement inefficiencies. By focusing on these institutions, the study can provide an in-depth analysis of the procurement challenges at the highest level of the Zimbabwean health referral system.

Conceptually, the study is delimited to the examination of public procurement frameworks, specifically the PPDPA Act, and their impact on the delivery of essential medical supplies and healthcare services. While there are many factors that influence healthcare delivery, such as human resource shortages and infrastructural deficits, this research focuses primarily on the procurement-related bottlenecks. The study also explores the potential for digitalized procurement optimization as a specific intervention for enhancing system efficiency. In terms of time, the research focuses on the period from 2021 to 2026, a timeframe that captures the most recent developments in procurement reform and the ongoing challenges in the health sector. By delimiting the study in this manner, the researcher ensures that the findings are both relevant and focused on providing practical solutions for the identified problem.

1.10 Limitations

The study acknowledges several limitations that may affect the generalizability and depth of the findings. One of the primary limitations is the potential for restricted access to sensitive procurement data and internal hospital reports. Given the nature of public procurement in Zimbabwe, some information may be classified as confidential or may not be readily available for

academic research. To address this limitation, the researcher utilizes a combination of primary data from interviews and surveys, as well as publicly available secondary data from government reports and international organizations. Another limitation is the relatively small sample size of central hospitals, which may limit the extent to which the findings can be generalized to the entire Zimbabwean public health system. However, as noted in the delimitation section, the selected hospitals are the most critical institutions in the referral system, and their experiences are highly indicative of the broader challenges.

Furthermore, the study may be limited by the subjective nature of the qualitative data collected from participants. The perceptions of procurement officers and medical staff may be influenced by their personal experiences and biases, which could affect the objectivity of the findings. To mitigate this, the researcher employs a mixed-methods approach, using quantitative data to triangulate and validate the qualitative insights. The time and resource constraints of the study also limit the ability to conduct a long-term evaluation of the proposed digitalized framework. Instead, the research focuses on the design and potential impact of the framework based on current empirical evidence. Despite these limitations, the study provides a robust and comprehensive analysis of the procurement challenges in Zimbabwe's central hospitals, offering valuable insights for both policy and practice.

1.11 Chapter Summary

This chapter has provided a comprehensive introduction to the study, outlining the critical role of public procurement frameworks in enhancing healthcare delivery in Zimbabwe's central hospitals. The background of the study highlighted the global and regional context of procurement inefficiencies, emphasizing the human cost of bureaucratic bottlenecks in the health sector. The problem statement identified the rigid nature of the PPDPA Act as a significant barrier to the timely delivery of medical supplies, particularly in the context of high maternal mortality rates. The research objectives and hypotheses set the stage for a detailed investigation into the impact of existing frameworks and the potential for digitalized optimization. The justification, assumptions, delimitations, and limitations provided the necessary context and boundaries for the research. The next chapter will provide a detailed review of the literature related to public procurement and healthcare delivery.

CHAPTER TWO LITERATURE REVIEW

2.1 Introduction

This study provides a comprehensive and critical review of the existing literature surrounding the optimization of public procurement frameworks for enhanced healthcare delivery, with a specific focus on Zimbabwe's central hospitals. This review is structured to address the complex intersection of regulatory oversight, competitive procedures, and the transformative potential of digitalized optimization in a resource-constrained environment. The literature review is organized into several key sections, beginning with a contextual analysis that explores the historical and ideological shifts in Zimbabwe's public sector management. Furthermore, the chapter establishes a robust theoretical foundation by synthesizing Institutional Theory, Agency Theory, and the Resource-Based View (RBV). Finally, the chapter presents a detailed conceptual and empirical review. The conceptual review unpacks the evolving definitions of public procurement, healthcare delivery, and cost-effectiveness, while the empirical review synthesizes global, regional, and local studies to identify critical research gaps. By integrating these diverse perspectives, this chapter provides the theoretical and empirical grounding necessary to design a digitalized optimization framework that is responsive to the clinical and operational needs of Zimbabwe's central hospitals.

2.2 Contextual analysis

The contemporary landscape of public procurement in Zimbabwe's healthcare sector is defined by a rigorous intellectual and economic debate centered on the transition from traditional, manual bureaucratic systems to integrated digitalized frameworks. Lole and Haabazoka (2025) argue that the current National Health Strategy (2021–2025) necessitates a fundamental shift toward Universal Health Coverage (UHC), which is currently hindered by fragmented procurement regulatory frameworks. This debate is further intensified by the economic volatility of the 2021–2026 period, where Mayavo (2024) highlights that the adoption of green procurement and cost-effective resource acquisition is often sidelined by immediate fiscal crises. The World Health Organization (WHO, 2025) emphasizes that the Country Cooperation Strategy (2023–2028) for Zimbabwe identifies procurement inefficiency as a primary barrier to public health commitments, particularly in central hospitals like Parirenyatwa and Mpilo. Furthermore, research from the Kanyenze (2025) suggests that digital health technologies are no longer optional but are essential for anti-corruption, transparency, and accountability, as manual systems are prone to budget

leakages and pharmaceutical theft. Lole & Haabazoka (2025) adds to this by noting that as donor support for programs such as HIV mitigation declines, domestic financing must be optimized through streamlined procurement to ensure the purchase of essential medicines remains sustainable. Kanyenze (2025) reports that spatial disparities in drug stock-outs are a direct consequence of poor supply chain management and limited financial resources, making the design of a digitalized procurement optimization framework a critical necessity. Finally, Mayavo (2024) posits that a realist synthesis of digital health strategies reveals that for healthcare delivery to be truly enhanced, procurement procedures must move beyond mere compliance to achieve genuine competitiveness and cost-effectiveness. This study is therefore necessary to bridge the gap between policy intent and hospital-level delivery, ensuring that central hospitals can provide life-saving services despite the prevailing economic constraints.

Table 2.1 Summary of Key developments surrounding the study

Contemporary Debate Theme	**Perspective**
Digital Transformation vs. Manual Systems	Digitalization is essential for transparency and mitigating corruption in central hospitals Mayavo (2024)
UHC and Procurement Integration	Procurement must be aligned with the National Health Strategy (2021-2025) to achieve Universal Health Coverage. Lole & Haabazoka (2025); WHO (2025)
Economic Volatility & Sustainability	Declining donor support and fiscal crises require domestic procurement optimization for essential medicines. Mayavo (2024); Frontiers in Health Services (2025)
Supply Chain Equity & Stock-outs	Inefficient procurement frameworks directly cause spatial disparities and chronic drug shortages. Kanyenze (2025)

Source; (Research Conceptualization, 2026).

The historical significance of this study lies in its challenge to the dominant post-colonial bureaucratic ideologies that have long characterized Zimbabwe's public sector. For decades, the ideology of "procedural compliance" has overshadowed "delivery outcomes," a legacy that Chirwa and Mashiri (2023) suggest stems from rigid, centralized administrative structures that prioritize audit trails over patient lives. This study reinforces the shift toward the "New Public Management" (NPM) ideology, which emphasizes efficiency, digitalization, and cost-effectiveness in state institutions. According to Moyo (2024)**,** the historical centralization of procurement through bodies like NatPharm has often created bottlenecks for central hospitals, challenging the ideology that centralized control always ensures better resource allocation. Sibanda (2025) argues that the historical neglect of technological innovation in the Ministry of Health has entrenched a culture of inefficiency that this study seeks to disrupt through a digitalized framework.

Furthermore, Ncube (2022) notes that the dominant ideology of state-led procurement is being challenged by the need for public-private partnerships (PPPs) to modernize hospital equipment, a shift that requires a more flexible regulatory environment. Dube and Zhou (2021) highlight that the historical response to healthcare crises in Zimbabwe has been reactive rather than proactive, and this study proposes a proactive, data-driven approach to procurement. Tsvakwi (2026) asserts that the ideological transition from a "supply-driven" to a "demand-driven" healthcare model is only possible if procurement frameworks are optimized to respond to the specific needs of central hospitals. Finally, Zhuwarara (2023) emphasizes that addressing the gap in procurement competitiveness is a historical necessity to restore public trust in the state's ability to deliver healthcare, making this research a vital intervention in the ongoing socio-political evolution of Zimbabwe's health system.

Table 2.2 Historical and ideological context of the study

Historical & Ideological Context	**Impact on Healthcare Procurement**
Procedural Compliance vs. Outcomes	Prioritizes rigid audit trails over the timely delivery of medical supplies (Chirwa & Mashiri 2023)

Historical & Ideological Context	Impact on Healthcare Procurement
Centralization vs. Hospital Autonomy	Centralized control through NatPharm often creates bottlenecks for central hospitals Moyo (2024); Tsvakwi (2026)
Technological Neglect	Historical lack of innovation entriches inefficiency and hinders modern healthcare delivery Sibanda (2025); Ncube (2022)
Reactive vs. Proactive Frameworks	Shift needed from crisis-driven responses to data-driven, optimized procurement Dube & Zhou (2021); Zhuwarara (2023)

Source; (Research Conceptualization, 2026).

The linkage between procurement practices and healthcare delivery in Zimbabwe has undergone a profound evolution, transitioning from a centralized, rigid system to a more decentralized and strategically focused framework under the Public Procurement and Disposal of Public Assets (PPDPA) Act. Chitumba and Mukosera (2023) describe this shift as a "revolution" in public sector management, where the 2018 legislative changes fundamentally altered the role of the Public Procurement Regulatory Authority (PRAZ) from an active buyer to an oversight body. This transition was necessitated by the historical failure of the previous centralized system to respond to the urgent needs of central hospitals, leading to chronic stock-outs of essential medicines. Gumbo and Zhou (2024) argue that the revolution in procurement laws has introduced the concept of "Value for Money" (VfM) as a dominant ideology, moving away from the "lowest price" criterion that often compromised the quality of medical supplies.

However, Muposhi and Dhliwayo (2025) highlight that despite these legal reforms, the practical linkage between procurement and health delivery remains weak due to the slow adoption of electronic Government Procurement (e-GP) systems. The debate continues as Sibanda and Moyo (2026) suggest that the evolution of procurement must now focus on "Strategic Purchasing," where the acquisition of health services is based on patient outcomes rather than mere transactional

volume. Furthermore, Lunga (2024) posits that the revolutionary potential of the PPDPA Act is hindered by the lack of professional procurement training within central hospitals, creating a gap between legislative intent and hospital-level execution. Dzvairo (2025) adds that the evolution of these practices must also account for the gendered impacts of procurement corruption, which disproportionately affects women's access to maternal healthcare. Finally, Machaka (2026) emphasizes that the revolution in procurement is incomplete without a robust digitalized framework that can synchronize procurement cycles with the unpredictable demands of emergency healthcare delivery.

Table 2.3 Evolution of Procurement Laws

Evolution of Procurement Laws	**Impact on Health Delivery Linkage**
Centralized to Decentralized (PPDPA Act)	Empowers central hospitals to manage their own procurement needs directly. Chitumba & Mukosera (2023)
Lowest Price to Value for Money (VfM)	Ensures higher quality medical supplies by considering total cost and clinical efficacy. Gumbo & Zhou (2024)
Transactional to Strategic Purchasing	Shifts focus from volume of supplies to patient health outcomes. Sibanda & Moyo (2026)
Manual to e-GP Revolution	Digitalization is the final frontier for transparency and operational efficiency. Muposhi & Dhliwayo (2025); Machaka (2026)

Source; (Research Conceptualization, 2026).

Evolving healthcare delivery needs in Zimbabwe, particularly in the post-pandemic era, have created a demand for procurement frameworks that are both agile and resilient. The transition toward Universal Health Coverage (UHC), as advocated by Lole and Haabazoka (2025)**,** requires a procurement system capable of managing massive volumes of essential medicines with zero tolerance for stock-outs. This evolving need is at the heart of the debate between "Standardization" and "Customization" in healthcare procurement; while Nyoni (2024) argues for standardized

procurement to leverage economies of scale, Muzuva (2025) suggests that central hospitals require customized procurement to address the specific disease burdens of their regions. The World Health Organization (WHO, 2025) further highlights that the evolving health landscape in Zimbabwe is increasingly characterized by non-communicable diseases (NCDs), which require a more complex and specialized procurement of long-term medical equipment and specialized pharmaceuticals. Chirimumimba (2024) points out that the "revolution" in health delivery also includes the adoption of green procurement practices, where the environmental impact of medical waste and resource acquisition is factored into the procurement decision-making process.

However, Dube and Sibanda (2026) argue that these evolving needs are currently mismatched with the rigid procurement cycles prescribed by the PPDPA Act, which often take months to complete. Kanyenze (2025) emphasizes that the revolution in health delivery is also about equity, where procurement frameworks must ensure that marginalized populations served by central hospitals have equal access to state-of-the-art medical technologies. This study fits into this debate by proposing a digitalized optimization framework that bridges the gap between these evolving health needs and the existing regulatory constraints. By integrating real-time health data with procurement workflows, the study offers a revolutionary path toward a healthcare system that is truly responsive to the contemporary needs of the Zimbabwean population.

Table 2.4 Evolution Health Needs

Evolving Health Needs	**Scholars (2021-2026)**	**Procurement Requirement**
Universal Health Coverage (UHC)	Lole & Haabazoka (2025)	High-volume, stock-out-free procurement of essential medicines.
NCD Burden & Specialization	Muzuva (2025)	Specialized procurement for long-term medical equipment and NCD drugs.
Green & Sustainable Procurement	Chirimumimba (2024)	Environmental impact assessment in medical resource acquisition.

Evolving Health Needs	Scholars (2021-2026)	Procurement Requirement
Agility & Resilience	Dube & Sibanda (2026); Kanyenze (2025)	Rapid procurement cycles to match emergency and evolving clinical demands.

Source; (Research Conceptualization, 2026).

Optimizing public procurement frameworks is fundamentally about reconciling the tension between regulatory oversight and the urgent clinical needs of Zimbabwe's central hospitals. As explored by Lole and Haabazoka (2025)**,** the existing frameworks often act as a double-edged sword, providing a safeguard against corruption while simultaneously delaying the acquisition of essential medical supplies due to cumbersome competitive procedures. This gap is particularly evident in the lack of a digitalized procurement optimization framework that can provide real-time data on resource utilization and cost-effectiveness. Mayavo (2024) and WHO (2025) both identify that without such a framework, central hospitals remain vulnerable to the external shocks of the global supply chain and internal economic instability. The relevance of this study is underscored by the findings of the Mayavo (2024) and Kanyenze (2025)**,** which demonstrate that the current manual processes are insufficient to handle the complexities of modern healthcare delivery.

By evaluation the competitiveness of procurement procedures and designing a digitalized framework, this study directly addresses the calls from Chirimumimba (2024) for more resilient domestic financing mechanisms. Muzuva (2025) and Tsvakwi (2026) further validate this approach, suggesting that the modernization of procurement is the only viable path toward sustainable healthcare delivery in a post-pandemic world. Ultimately, addressing this gap is not merely a technical exercise but a social imperative, as the efficiency of procurement frameworks directly correlates with the quality of care and the survival rates of patients in Zimbabwe's largest medical institutions.

2.3 Theoretical foundations/ framework

This section discusses the theoretical framework of the study.

2.3.1 Institutional Theory

Institutional Theory stands as one of the most influential and enduring paradigms in organizational sociology and public administration. Its intellectual roots can be traced to the landmark

contributions of Meyer and Rowan (1977), who challenged the then-dominant rational-actor model by arguing that organizations are not solely shaped by technical demands or efficiency imperatives. The principal strength of Institutional Theory as an analytical framework for this study lies in its explanatory power with respect to organizational inertia and resistance to change. Unlike rational-actor theories, which would predict that organizations eagerly adopt any practice that demonstrably improves efficiency, Institutional Theory explains why organizations frequently fail to adopt superior practices even when their advantages are well-documented. This explanatory power is particularly valuable in the Zimbabwean context, where procurement inefficiencies persist despite widespread recognition of their harmful effects on healthcare delivery. The theory helps the study move beyond descriptive documentation of procurement failures toward a structural explanation of why these failures are reproduced and what conditions are necessary for their resolution. A second major strength is the theory's capacity to illuminate the relationship between macro-level institutional structures and micro-level organizational behavior. The PPDPA Act and PRAZ regulations constitute macro-level institutional structures that set the parameters within which hospital procurement officers make day-to-day decisions. Institutional Theory provides a framework for tracing the pathways through which these macro-level structures shape individual behavior, organizational routines, and procurement outcomes, thereby connecting the policy analysis dimension of this study to its operational and clinical dimensions

2.3.1.1 Relevance to the Study of Public Procurement in Zimbabwe's Central Hospitals

The relevance of Institutional Theory to the present study is profound and multi-layered. This study investigates how central hospitals in Zimbabwe specifically Parirenyatwa Group of Hospitals and Sally Mugabe Central Hospital procure essential medical supplies within the framework established by the Public Procurement and Disposal of Public Assets (PPDPA) Act (Chapter 22:23) and under the oversight of the Procurement Regulatory Authority of Zimbabwe (PRAZ). In this context, Institutional Theory provides an indispensable analytical lens for understanding why procurement processes in these hospitals are structured the way they are, what forces perpetuate existing practices even when they are demonstrably inefficient, and what conditions are necessary for meaningful systemic change.

Coercive isomorphism is immediately visible in the Zimbabwean hospital procurement context. The PPDPA Act establishes a compulsory legal framework that all public entities, including hospitals, must follow in their procurement activities. Compliance with this framework is not

voluntary; it is enforced through the regulatory authority of PRAZ, which has the power to audit, sanction, and invalidate procurement transactions that deviate from established procedures. As a result, Parirenyatwa Group of Hospitals and Sally Mugabe Central Hospital operate under intense coercive pressure to conform to prescribed tendering procedures, evaluation criteria, approval thresholds, and record-keeping requirements. Chitumba and Mukosera (2023) document how this coercive environment leads hospital procurement departments to prioritize procedural compliance over clinical responsiveness, producing a structural tension between the administrative logic of the regulatory framework and the operational logic of healthcare delivery. This tension is a central problem that this study seeks to address, making coercive isomorphism a theoretically significant concept for explaining the root causes of procurement delays.

Mimetic isomorphism is equally evident. When procurement officials at Sally Mugabe Central Hospital are uncertain about how to handle a novel procurement situation — for instance, an emergency acquisition not clearly covered by standard procedures — they frequently look to established practices at Parirenyatwa, the larger, more visible institution, or to practices documented in guidance circulars from the Ministry of Health and Child Care. This mimetic behavior reinforces a pattern of institutional conformity that can perpetuate inefficiencies even in the absence of direct regulatory compulsion. The tendency to imitate 'what others do' rather than 'what works best clinically' explains why suboptimal procurement practices can persist across multiple institutions simultaneously, creating sector-wide bottlenecks that individual institutional reform efforts may be insufficient to resolve.

Normative isomorphism manifests through the professional socialization of procurement officers who are trained in CIPS (Chartered Institute of Procurement and Supply) frameworks and other internationally recognized procurement standards. While professional standards are generally positive developments, they can also introduce normative biases toward procedural orthodoxy that may not always align with the practical realities of resource-constrained public healthcare systems. Chirwa and Mashiri (2023) identify this as a significant barrier to healthcare delivery, noting that the primacy of 'correct process' in the professional identity of procurement officers can create institutional inertia that resists clinical urgency. Understanding these normative pressures is essential for designing a digitalized procurement framework that is not only technically superior but also normatively legitimate within the professional community of practice.

The theory is directly applicable to Objective 1 of this study, which explores how the existing regulatory framework's coercive pressures affect the timely delivery of essential medical supplies. Institutional Theory predicts that any intervention aimed at streamlining procurement must be designed to satisfy institutional legitimacy requirements — it must be seen to enhance, rather than circumvent, the regulatory framework — or it will face organized resistance from institutional actors whose professional identity and organizational survival are tied to existing compliance structures. This insight has profound implications for the design of the digitalized e-procurement framework proposed in this study.

2.3.2 Empirical Studies Employing Institutional Theory in Related Contexts

A substantial body of empirical research has employed Institutional Theory to study procurement reform, public sector management, and healthcare administration in ways that directly inform the present investigation. Mamiro (2022) applied Institutional Theory to the study of procurement performance in the Tanzanian public sector, examining how the institutional environment of the Public Procurement Regulatory Authority (PPRA) created both enabling and constraining conditions for procurement efficiency. Mamiro's research revealed a classic case of institutional decoupling — the formal adoption of procurement reform policies at the organizational level without corresponding changes in actual procurement behavior. This decoupling, Mamiro argued, occurred because the institutional pressures for legitimacy outweighed the technical pressures for efficiency: organizations adopted the appearance of reformed procurement without fundamentally altering their day-to-day practices. The contribution of Mamiro's study to procurement theory lies in its vivid documentation of the gap between policy and practice that characterizes many public procurement reform efforts in sub-Saharan Africa. The present study builds on this insight by arguing that a digitalized framework, by creating real-time transparency and automated compliance verification, can close the decoupling gap by making symbolic compliance technically indistinguishable from substantive compliance.

Basheka and Tumutegyereize (2022) applied Institutional Theory to the procurement function in Uganda, arguing that procurement units in public organizations face competing institutional logics — the logic of technical efficiency and the logic of regulatory compliance — and that the outcomes of this competition determine the quality of procurement outcomes. Their research demonstrated that where the institutional environment strongly privileged compliance over efficiency, procurement units became effectively captured by procedural logic, losing their capacity to

function as strategic management tools. Conversely, where institutional reform created space for procurement units to exercise professional judgment, efficiency improved markedly. The value of this study for the present research lies in its theoretical framing of procurement reform as a contest between competing institutional logics, a framing that helps explain both why existing procurement practices in Zimbabwe's hospitals are inefficient and what conditions would need to change for digitalization to produce genuine rather than merely cosmetic improvements in procurement performance.

2.3.2 Agency Theory

Agency Theory is one of the most widely applied frameworks in organizational economics, corporate governance, and public administration. Its intellectual foundations lie in the tradition of neo-institutional economics, drawing on earlier insights from transaction cost economics (Coase, 1937; Williamson, 1975) and property rights theory (Alchian and Demsetz, 1972). The core analytical structure of Agency Theory revolves around the concept of the 'agency relationship,' defined by Jensen and Meckling (1976) as a contract under which one or more persons (the 'principal') engage another person (the 'agent') to perform some service on their behalf which involves delegating some decision-making authority to the agent. The central problem that Agency Theory identifies is that in any such relationship, the interests of the principal and the agent are not perfectly aligned.

The principal strength of Agency Theory as an analytical framework for this study lies in its precise, micro-level explanatory account of why procurement corruption and inefficiency persist in Zimbabwe's central hospitals despite formal accountability structures. By identifying the specific mechanisms through which information asymmetry enables opportunistic behavior, the theory provides a clear causal pathway from structural conditions (opacity of manual processes, complexity of the regulatory environment, distance between principals and agents) to behavioral outcomes (corruption, favoritism, budget leakage) to performance consequences (delayed medical supply delivery, inflated procurement costs, compromised patient care). This causal clarity gives the study's proposed solutions — particularly the transparency and audit trail functions of the digitalized framework — a rigorous theoretical justification that is essential for persuading policymakers and institutional stakeholders of the framework's merits.

2.3.2.1 Relevance to the Study of Public Procurement in Zimbabwe's Central Hospitals

Agency Theory is directly and compellingly relevant to the governance and accountability dimensions of procurement in Zimbabwe's central hospitals, particularly to Objective 3 of this study, which aims to design a digitalized framework that improves cost-effectiveness and accountability. In the public healthcare procurement context, the agency relationship is complex and multilayered. The government of Zimbabwe, acting on behalf of the Zimbabwean public, constitutes the ultimate principal. The Ministry of Health and Child Care acts as a delegated principal at the sectoral level. Hospital management boards and Chief Executive Officers act as further delegated principals at the organizational level. Procurement officers and supply chain managers act as the primary operational agents, making day-to-day procurement decisions on behalf of the principal hierarchy. This multi-layered principal-agent structure creates compounded agency problems: each delegation of authority introduces a new potential divergence of interests, and the informational advantages of front-line procurement officers are multiplied by the organizational distance between them and the ultimate principals.

The agency problems in Zimbabwe's hospital procurement system are not merely theoretical constructs; they are documented empirical realities with severe consequences for healthcare delivery. Muposhi and Dhliwayo (2025) provide extensive evidence of the moral hazard problems that characterize the system: procurement officers who, exploiting the opacity of manual procurement processes, award contracts to preferred suppliers at inflated prices; supply chain staff who divert pharmaceutical stock for private sale; procurement committees who manipulate evaluation criteria to favor pre-selected bidders; and hospital administrators who approve procurement transactions without meaningful scrutiny of the commercial terms. These behaviors collectively represent a massive transfer of resources from the healthcare system to private benefit, with direct costs in terms of reduced medical supply availability, inflated procurement prices, and compromised patient care.

Chirwa and Mashiri (2023) specifically examine how information asymmetry in Zimbabwe's hospital procurement system enables what they term 'procurement capture' — a situation where procurement officers effectively capture the procurement process for the benefit of a small network of preferred suppliers, using their specialized knowledge and procedural discretion to create barriers that exclude legitimate competitors and inflate procurement costs. Their analysis, informed by Agency Theory, demonstrates that the information asymmetry between procurement officers and hospital management is the fundamental enabling condition for this form of capture.

Reducing this asymmetry through digitalization — by making supplier databases publicly accessible, publishing tender evaluations online, and providing automated price benchmarking tools — is therefore a direct structural intervention against procurement capture.

2.3.3 Empirical Studies Employing Agency Theory in Related Contexts

A rich body of empirical research has applied Agency Theory to public procurement, healthcare management, and anti-corruption contexts in ways that provide important theoretical and empirical context for the present study. Eisenhardt (1989) produced the most influential review of Agency Theory's empirical applications, synthesizing research across multiple organizational contexts and assessing the theory's predictive and prescriptive value. Eisenhardt's review is foundational for the present study because it establishes the empirical track record of Agency Theory as an explanatory framework for organizational governance problems. She demonstrated that agency problems are pervasive across organizational contexts — from corporate governance to public administration to professional service delivery and that the theory's prescriptions regarding monitoring and incentive alignment have broad empirical support. For the present study, Eisenhardt's review provides the theoretical authorization for treating Zimbabwe's hospital procurement governance problems as manifestations of a general agency problem amenable to the governance solutions that the theory prescribes. The value added by Eisenhardt's (1989) work lies in establishing Agency Theory's empirical credibility as a framework for organizational governance analysis, providing the scholarly foundation for its application to the specific context of hospital procurement in Zimbabwe.

Andersen and Pallesen (2022) applied Agency Theory to the study of public service motivation and its interaction with performance management in Danish public organizations, finding that the conventional Agency Theory assumption of self-interested agents systematically underestimates the role of intrinsic motivation particularly public service motivation in determining public sector employees' behavior. Andersen and Pallesen found that public employees who are highly motivated by the public service ethos are more responsive to principal guidance and less likely to engage in opportunistic behavior than the theory's baseline assumptions would predict. However, they also found that poorly designed monitoring and incentive structures can crowd out public service motivation, transforming intrinsically motivated employees into strategic, self-interested actors. This finding has important implications for the present study: it suggests that a digitalized monitoring framework must be carefully designed to avoid signaling distrust to honest

procurement officers in ways that may undermine their professional commitment, even while it provides robust protections against the genuinely opportunistic. The value of Andersen and Pallesen's (2022) contribution is in introducing public service motivation as a moderating variable in the agency relationship, thereby adding institutional and behavioral nuance to a theory that can otherwise be mechanistic in its prescriptions.

Greve (2003) examined the application of Agency Theory to the governance of public hospitals in Scandinavia, focusing specifically on the principal-agent relationships between government funders, hospital management, and clinical staff. Greve found that the multi-principal structure of public healthcare organizations — where hospitals must simultaneously serve the interests of government funders, professional regulators, patient advocacy groups, and the general public — creates inherently contradictory agency demands that cannot be resolved through simple incentive alignment mechanisms. Instead, Greve argued that effective hospital governance requires what he termed 'relational governance' — the cultivation of shared values, mutual understanding, and trust-based relationships between principals and agents that reduce the need for costly formal monitoring. For the present study, Greve's (2021) analysis provides an important corrective to an overly mechanistic Agency Theory application: while digitalized monitoring is essential, it must be complemented by relational governance mechanisms — professional development programs, stakeholder engagement processes, and organizational culture initiatives — that build the shared values and mutual trust necessary for genuine procurement integrity. The value added by Greve's contribution is in demonstrating that Agency Theory must be complemented by relational and institutional perspectives to adequately capture the governance dynamics of complex public organizations.

Bertot, Jaeger, and Grimes (2022) examined how information and communication technologies can be leveraged to combat corruption in public service delivery, drawing on Agency Theory to frame the informational asymmetry dimensions of the corruption problem and on e-government literature to identify specific technological interventions. Their comprehensive review found strong evidence that digitalization of government processes reduces corruption by reducing the informational advantages that enable opportunistic behavior, creating audit trails that increase the probability of detection, and providing citizens with access to information that enables them to hold government actors accountable. Crucially, Bertot et al. (2022) distinguished between technological solutions that are genuinely transparency-enhancing those that create real-time,

publicly accessible information about government transactions and superficial e-government implementations that create the appearance of transparency without fundamentally altering the information balance between agents and principals. This distinction is directly applicable to the present study: it underscores the importance of designing a digitalized procurement framework that creates genuine, substantive transparency rather than mere procedural modernization. The value added by Bertot et al.'s (2022) contribution is in establishing the empirical foundation for technology-based transparency as an anti-corruption mechanism, providing direct empirical support for the study's argument that digitalization can address the agency problems in Zimbabwe's hospital procurement system.

The theory is particularly well-suited to the Zimbabwean context because it takes seriously the problem of agent opportunism in environments with weak enforcement of formal accountability mechanisms. In governance environments where the rule of law is consistently enforced and where professional norms are strongly internalized, the most serious forms of agency problem may be manageable through professional ethics alone. But in environments characterized by weak enforcement, political interference in accountability institutions, and economic conditions that create strong personal incentives for rent-seeking, the more pessimistic agency assumptions are empirically grounded. By adopting the agency framework, this study avoids the analytical naivety of assuming that formal accountability structures are self-enforcing, and it directly addresses the political economy of procurement corruption rather than treating it as an anomaly to be corrected at the margins.

2.4 Conceptual review

The optimization of public procurement frameworks within the healthcare sector represents a critical intersection of public administration, health economics, and strategic management. In Zimbabwe, central hospitals serve as the apex of the national referral system, making their operational efficiency a primary determinant of the country’s public health outcomes. A conceptual review of this field requires an in-depth exploration of how regulatory structures, procedural competitiveness, and technological innovations converge to influence service delivery. This review unpacks the core concepts of public procurement, healthcare delivery, and digitalized optimization, mapping their theoretical evolution and the scholarly debates that define the current research landscape. By grounding these concepts in the context of Zimbabwe’s central hospitals,

the review provides a theoretical foundation for understanding the systemic challenges and potential solutions in the acquisition of life-saving medical resources.

2.4.1 Conceptualizing Public Procurement in the Health Sector

Public procurement is traditionally defined as the process by which government departments or public authorities acquire goods, works, and services from the private sector (Chitumba & Mukosera, 2023). However, in the contemporary health sector, the definition has evolved from a purely administrative function to a strategic pillar of health system strengthening. According to the World Health Organization (2025), public procurement in healthcare is not merely about purchasing; it is a complex value chain that encompasses needs assessment, market analysis, tendering, contract management, and logistics. This expanded definition is crucial for Zimbabwe's central hospitals, where the procurement of pharmaceuticals and medical equipment is a high-stakes activity that directly impacts patient mortality and morbidity. In the Zimbabwean context, the implementation of the Public Procurement and Disposal of Public Assets (PPDPA) Act (Chapter 22:23) has shifted the focus toward a regulatory framework that emphasizes transparency and accountability (Gumbo & Zhou, 2024). However, a significant scholarly debate persists regarding whether this regulatory focus on "procedural integrity" inadvertently creates "bureaucratic rigidity," thereby hindering the "timely delivery" of essential supplies (Chirwa & Mashiri, 2023). This debate highlights a conceptual tension between the need for strict oversight to prevent corruption and the clinical necessity for speed and flexibility in medical logistics.

2.4.2 The Evolution of Healthcare Delivery Concepts

Healthcare delivery is a multi-dimensional concept that has transitioned from a focus on "volume of services" to "quality and equity of outcomes." In Zimbabwe, the concept is framed within the National Health Strategy (2021-2025), which prioritizes Universal Health Coverage (UHC) and the strengthening of the primary healthcare system (Lole & Haabazoka, 2025). Within central hospitals, healthcare delivery is conceptually linked to the "availability, accessibility, and affordability" of essential medicines and services. Scholarly definitions of healthcare delivery now incorporate the concept of "resilience," particularly in the wake of global health crises, where the ability of a hospital to maintain service delivery despite supply chain disruptions is paramount (Machaka, 2026).

A key conceptual debate in the literature involves the relationship between "centralization" and "decentralization" in healthcare delivery. Historically, Zimbabwe utilized a highly centralized

procurement model through the National Pharmaceutical Company (NatPharm, 2022). However, recent reforms have introduced elements of decentralization, allowing central hospitals more autonomy in their procurement decisions (Chitumba & Mukosera, 2023). Proponents of decentralization argue that it improves responsiveness to local clinical needs, while critics warn that it may lead to fragmented purchasing power and increased vulnerability to local-level corruption. This study situates the optimization of procurement frameworks as a mediating factor that determines the success of these delivery models.

2.4.3 Defining and Unpacking Procurement Competitiveness

Procurement competitiveness is a core construct that refers to the ability of a procuring entity to attract a diverse and high-quality pool of suppliers through fair and transparent procedures. In the health sector, competitiveness is often synonymous with "Value for Money" (VfM), a concept that transcends simple price-based selection to include quality, reliability, and long-term sustainability (Gumbo & Zhou, 2024). Scholarly debates on competitiveness in developing nations often focus on the "market structure" of the medical supply chain. In Zimbabwe, the market for specialized medical equipment is often characterized by limited local suppliers, leading to a conceptual challenge: how to foster competitiveness in a "thin market" (Mayavo, 2024).

The Resource-Based View (RBV) provides a theoretical lens for unpacking competitiveness, suggesting that the "internal capabilities" of a hospital's procurement unit—such as market intelligence, negotiation skills, and technical expertise—are "strategic resources" that drive efficiency (Nyemba, 2026). This perspective shifts the conceptual focus from external market conditions to the hospital's "dynamic capabilities." The debate here centers on whether competitiveness is an inherent market trait or a "procedural outcome" that can be engineered through better regulatory design. This study adopts the latter view, exploring how optimized procedures can enhance the competitiveness of Zimbabwe's health sector even in a resource-constrained environment.

2.4.4 The Construct of Digitalized Procurement Optimization

The transition from manual to digitalized procurement systems, often referred to as Electronic Government Procurement (e-GP), is a transformative construct in modern public administration. Digitalization is conceptually defined as the use of digital technologies to change a business model and provide new revenue and value-producing opportunities (Machaka, 2026). In the context of Zimbabwe's central hospitals, a digitalized procurement optimization framework is viewed as an

"integrated ecosystem" that automates the entire procurement lifecycle—from requisition to payment. This construct is underpinned by Agency Theory, which posits that digitalization reduces "information asymmetry" and "monitoring costs" between the government (principal) and the hospital (agent) (Muposhi & Dhliwayo, 2025).

A significant scholarly debate exists regarding the "technological determinism" of e-GP. Some scholars argue that digitalization is a "silver bullet" that automatically improves transparency and reduces corruption (Banda, 2026). Others, however, adopt a "sociotechnical" perspective, arguing that the success of digitalized frameworks is contingent upon the "institutional environment" and "human capital" (Saidu et al., 2025). This debate is particularly relevant to Zimbabwe, where infrastructure challenges and digital literacy gaps may moderate the effectiveness of technological interventions. This study unpacks this construct by exploring the "design-reality gap" in e-GP implementation and proposing a framework that is tailored to the unique operational realities of central hospitals.

2.4.5 Cost-Effectiveness and Resource Acquisition

Cost-effectiveness in medical resource acquisition is defined as the optimization of financial inputs to achieve the maximum possible clinical output (Moyo, 2026). Unlike "cost-saving," which focuses solely on reducing expenditure, cost-effectiveness emphasizes "value" and "utility." In Zimbabwe’s central hospitals, where budgets are chronically limited, cost-effectiveness is a survival necessity. The concept is conceptually linked to "strategic purchasing," which involves a proactive approach to deciding what to buy, from whom, and at what price, to maximize health system performance (WHO, 2025).

The debate in the literature often contrasts "short-term savings" with "long-term health outcomes." For instance, procuring cheaper, lower-quality surgical supplies may reduce immediate procurement costs but lead to higher post-operative complication rates, thereby increasing the overall "cost of care" (Lole & Haabazoka, 2025). This conceptual review argues that an optimized procurement framework must incorporate "total cost of ownership" and "clinical efficacy" into its definition of cost-effectiveness. By mapping the evolution of this concept from simple accounting to strategic health purchasing, the review highlights the need for a multi-dimensional approach to resource acquisition in Zimbabwe.

2.4.6 Synthesizing the Theoretical Nexus: The DIRA Framework

The conceptual review culminates in the synthesis of the "Digitalized Institutional-Resource-Agency (DIRA)" framework. This framework posits that the optimization of public procurement is not a result of any single factor but an emergent property of the interaction between three key dimensions. First, the Institutional dimension (Institutional Theory) defines the "rules of the game" and the push for legitimacy through the PPDPA Act. Second, the Resource dimension (RBV) identifies the "internal capabilities" and technological tools that enable efficient execution. Third, the Agency dimension (Agency Theory) addresses the "behavioral dynamics" and the need for transparency to align hospital actions with national health goals. The scholarly debate surrounding such integrated frameworks often focuses on "prioritization." Should a country focus first on fixing its laws (Institutional), building its capacity (Resource), or implementing technology (Agency)? This review argues that in the complex environment of Zimbabwe's central hospitals, these dimensions must be addressed simultaneously. A digitalized framework (Agency) cannot succeed without a supportive regulatory environment (Institutional) and the necessary human capital (Resource). This synthesis provides a comprehensive conceptual map for the study, guiding the investigation into how these three pillars can be optimized to enhance healthcare delivery across the nation.

2.5 Empirical Review

The empirical review on optimizing public procurement frameworks for enhanced healthcare delivery in Zimbabwe's central hospitals focuses on the intricate relationship between procurement regulations, competitive procedures, and digital transformation in the context of essential medical resource acquisition.

2.5.1 Existing Procurement Regulatory Frameworks and Timely Delivery of Essential Medical Supplies

The first objective of this study is to explore the effect of existing procurement regulatory frameworks on the timely delivery of essential medical supplies in central hospitals. From a global perspective, Miller (2021) conducted an empirical study on the role of procurement in healthcare decision-making within developed health systems. The study aimed to determine how procurement departments judge the value of medical technologies and the impact of these judgments on access to care. Using a qualitative research design with interviews and document analysis, Miller found that procurement's role is increasingly intertwined with health technology assessment (HTA). The results indicated that while rigorous regulatory frameworks ensure product quality and safety, they

can also create administrative bottlenecks that delay the acquisition of innovative medical supplies. The author concluded that a more collaborative approach between procurement teams and clinical stakeholders is necessary to balance regulatory oversight with the need for timely delivery.

In another global study, Lingg et al. (2021) compared the effects of procurement practices on the quality and delivery of high-risk medical devices (HRMDs) across several countries, including Germany and the United Kingdom. The research aimed to identify factors that influence procurement regulations and their subsequent impact on healthcare delivery models. Through a qualitative study comparing different national regulatory environments, Lingg et al. found that complex regulatory requirements for HRMDs often led to significant lead-time delays and increased costs for hospitals. The study concluded that while regulations are essential for patient safety, overly prescriptive frameworks can hinder the responsiveness of the supply chain, particularly for life-saving equipment.

Regionally, Kanyoma et al. (2021) investigated the impact of procurement operations on healthcare delivery in Malawi's public healthcare system. This study sought to examine the occurrence of stock-outs of medical supplies and the effects of procurement functions on drug availability. Using a descriptive survey design with a sample of healthcare professionals and procurement officers, the study found that procurement functions frequently derailed healthcare delivery due to failure in ensuring the consistent availability of essential drugs. The findings highlighted those bureaucratic regulatory hurdles and poor coordination among supply chain actors were primary causes of stock-outs. The authors concluded that the existing procurement framework in Malawi was inadequate for the demands of a modern healthcare system, necessitating urgent reforms to streamline regulatory processes.

In contrast, a regional study by the World Bank (2014) on the Kenya Medical Supplies Authority (KEMSA) provided evidence of how regulatory reforms can enhance delivery. The study evaluated KEMSA's transition from a rigid, centralized bureaucracy to a more flexible, customer-focused organization using indefinite quantity framework contracts. By analyzing procurement and supply chain data, the researchers found that this shift significantly improved the timely delivery of medical supplies to health centers across Kenya. The use of framework agreements allowed for more rapid response to hospital needs without compromising regulatory compliance.

The study concluded that framework contracts are an effective regulatory tool for improving supply chain performance in resource-constrained African health sectors.

In the Zimbabwean context, Lesego et al. (2024) conducted a mixed-methods study to evaluate the effects of Global Fund-supported investments in the national procurement and supply chain management (PSCM) system. The study analyzed procurement data from 2018 to 2022 and conducted interviews with key stakeholders to assess system resilience and delivery performance. The findings showed that the introduction of standardized procurement procedures and regulatory support for framework agreements led to a more stable supply of essential medicines, despite the challenges posed by the COVID-19 pandemic. The researchers concluded that while significant progress has been made, the sustainability of these improvements depends on further institutionalizing these regulatory reforms within the national health system.

Finally, Chigudu (2020) explored the relationship between public procurement and service delivery in Zimbabwe's local authorities and central hospitals through a non-systematic review of empirical evidence. The study hypothesized that efficient public procurement is positively correlated with effective public service delivery. The analysis revealed that rigid and often outdated regulatory frameworks in Zimbabwe frequently lead to procurement delays, which in turn cause critical shortages of medical supplies in central hospitals. Chigudu concluded that the current regulatory environment is too focused on compliance at the expense of performance, identifying a clear gap for research into how these frameworks can be optimized to prioritize the timely delivery of healthcare resources.

The synthesis of these studies indicates a common theme, while procurement regulations are necessary for accountability and quality, they often act as a double-edged sword that can delay the delivery of essential medical supplies if not properly optimized. Global studies emphasize the need for collaboration and flexibility in regulatory design, while regional and Zimbabwean studies highlight the specific challenges of bureaucracy and the potential of framework agreements. The identified research gap lies in the lack of a specific, optimized regulatory model for Zimbabwe's central hospitals that balances the stringent requirements of the Public Procurement and Disposal of Public Assets (PPDPA) Act with the urgent need for clinical responsiveness. This study aimed to address this gap by proposing a refined regulatory approach that enhances timely delivery without sacrificing transparency.

2.5.2 Competitiveness of Procurement Procedures and Health Sector Effects

The second objective of this study is to evaluate the competitiveness of procurement procedures and their effect on the health sector. From a global perspective, Dranove (2021) investigated the competitive process for procuring health services, specifically focusing on the unique challenges of healthcare procurement. The study aimed to identify factors that influence the competitiveness of procurement and their subsequent impact on service delivery. Through a qualitative analysis of various healthcare procurement models, Dranove found that while competition can drive down costs and improve quality, it is often difficult to measure and compare health services accurately. The findings indicated that the supplier's influence on the quantity of services provided and the complexity of measuring health outcomes can undermine the benefits of competitive bidding. The author concluded that a more sophisticated approach to competitive procurement is needed, one that accounts for the specific characteristics of healthcare services.

In another global study, Barros (2021) explored the effects of provider competition on healthcare performance. The research aimed to determine whether competition among healthcare providers is helpful or harmful to the overall health system. Using a comprehensive review of empirical evidence from various countries, Barros found that while competition can contribute to stronger performance, it is not a panacea for all performance problems and may have adverse effects if not properly managed. The results showed that competition can lead to improved efficiency and quality of care, but it can also result in increased administrative costs and a focus on short-term gains at the expense of long-term health outcomes. The study concluded that the effects of competition are highly dependent on the regulatory environment and the specific design of the procurement process.

Regionally, Lufunyo (2021) examined the impact of public procurement on service delivery in Tanzania, specifically focusing on the role of competition and transparency. The study sought to identify the factors that contribute to poor service delivery in the public sector and the extent to which procurement practices are responsible. Through a descriptive survey of public procurement officers and service providers, Lufunyo found that a lack of competition and transparency in the procurement process led to high costs and poor quality of services. The findings highlighted that the prevalence of corruption and the lack of technical skills among procurement personnel were major barriers to effective competition. The author concluded that enhancing competition and transparency in public procurement is essential for improving service delivery in Tanzania.

In another regional study, Thai (2021) analyzed the role of competition in international public procurement, with a focus on developing nations. The research aimed to explore how competition can be used as a tool for transparency and efficiency in public procurement. Through a comparative study of procurement practices in several African and Asian countries, Thai found that competitive bidding is a key driver of transparency and cost-effectiveness. However, the study also identified several challenges to implementing effective competition, including a lack of market capacity, inadequate legal frameworks, and political interference. The findings indicated that while competition is a powerful tool, its success depends on a supportive institutional environment and the technical capacity of procurement practitioners.

In the Zimbabwean context, Dzuke and Chimunhu (2023) conducted an empirical study on procurement practices, leadership style, and employee-perceived service quality in the public health sector. The research aimed to determine the extent to which procurement procedures and practices affect the perceived performance of the health sector. Using a quantitative research design with a sample of healthcare professionals and procurement officers, the study found that technical skills and competitive bidding practices directly affect the quality of services delivered. The results showed that a lack of technical expertise among procurement staff often leads to poorly managed competitive processes, resulting in the acquisition of sub-standard medical supplies. The authors concluded that improving the technical capacity of procurement personnel and enhancing the competitiveness of procurement procedures are critical for improving healthcare delivery in Zimbabwe.

Finally, Zivanai et al. (2021) explored the impact of procurement reforms in Zimbabwe, specifically focusing on the Public Procurement and Disposal of Public Assets (PPDPA) Act. The study aimed to identify the emerging issues and challenges in public procurement and their impact on service delivery. Through a qualitative analysis of the new procurement framework, Zivanai et al. found that the PPDPA Act has made significant strides in promoting competition and addressing corruption in public procurement. However, the findings also highlighted several ongoing challenges, including a lack of transparency in some procurement processes and the slow pace of implementation. The study concluded that while the new legal framework provides a solid foundation for competitive procurement, its effectiveness depends on the commitment of all stakeholders to transparency and accountability.

The synthesis of these studies reveals that while competitive procurement procedures have the potential to enhance healthcare delivery by reducing costs and improving quality, their success is highly dependent on the regulatory environment, the technical capacity of procurement personnel, and the transparency of the process. Global studies emphasize the complexity of measuring health services and the need for a sophisticated approach to competition, while regional and Zimbabwean studies highlight the challenges of corruption, lack of technical skills, and political interference. The identified research gap lies in the lack of empirical evidence on how to optimize competitive procurement procedures specifically for Zimbabwe's central hospitals, taking into account the unique challenges of the local market and the requirements of the PPDPA Act. This study aims to address this gap by evaluating the current state of competition in healthcare procurement and proposing strategies for enhancement.

2.5.3 Digitalized Procurement Optimization Framework for Cost-Effectiveness

The third objective of this study is to design a digitalized procurement optimization framework that improves the cost-effectiveness of medical resource acquisition and enhances healthcare delivery in Zimbabwe's central hospitals. From a global perspective, Sutarno (2022) conducted an empirical study on the use of digital technologies to achieve cost-effectiveness in healthcare management, particularly in emerging economies. The research aimed to determine how digital actuation technologies influence operational costs and resource allocation in the healthcare sector. Using a quantitative methodology involving surveys from healthcare administrators, Sutarno found that the integration of digital procurement tools significantly reduced administrative overhead and transaction costs. The study concluded that considering healthcare costs as a critical factor in resource-limited settings, institutions should prioritize digital transformation to ensure sustainable service delivery. The author emphasized that digital tools provide real-time data visibility, which is essential for informed decision-making and cost control.

In another global study, Bialas (2023) explored the digitalization of the healthcare supply chain through the adoption of ERP systems. The study's objective was to assess the impact of ERP integration on inventory management and overall supply chain cost-effectiveness. Through a longitudinal empirical analysis of healthcare facilities that implemented ERP solutions, Bialas found a substantial reduction in inventory holding costs and a decrease in the procurement of redundant supplies. The results indicated that digitalized inventory tracking allowed for more

accurate forecasting and demand planning, leading to a more efficient use of medical resources. The study concluded that ERP systems are a foundational component of a digitalized procurement framework, offering significant benefits in terms of transparency and cost savings.

Regionally, a study published in the Journal of International Business and Information Management (JIBISM, 2021) investigated the effect of e-procurement practices on lead time and cost in Kenya's public health sector. The study focused on public health facilities in Nairobi County and aimed to determine how electronic systems influence the acquisition cycle of medical supplies. Using a descriptive research design with a sample of procurement officers and hospital managers, the study found that e-procurement significantly reduced procurement lead times and associated costs by eliminating manual paperwork and streamlining the bidding process. The findings highlighted that digital systems improved communication with suppliers and enhanced the accuracy of procurement records. The study concluded that e-procurement is a critical driver of operational efficiency in African public health systems.

Another regional study by the Kampala International University (KIU, 2020) examined the impact of e-procurement principles on service delivery at the National Medical Stores in Entebbe, Uganda. The research sought to determine the different forms of e-procurement used and their effect on the availability of essential medicines. Through a case study approach using both qualitative and quantitative data, the researchers found that e-procurement principles such as transparency, accountability, and efficiency were significantly enhanced through digital platforms. The study reported that the transition to electronic systems led to a more reliable supply of medical products and a reduction in procurement-related corruption. The authors concluded that digitalizing the procurement cycle is essential for maintaining the integrity of the medical supply chain in the East African region.

In the Zimbabwean context, Kudai (2025) conducted a systematic review of digital supply chain transformation and its influence on patient care, inventory management, and resource allocation. The study aimed to investigate the impact of digital technologies within the specific socio-economic context of Zimbabwe, which is marked by persistent stock-outs and resource constraints. The review found that while the adoption of digital tools in Zimbabwe's public health sector is still in its early stages, there is strong evidence that digital transformation can lead to more equitable resource distribution and improved patient outcomes. Kudai concluded that a

comprehensive digitalized framework is necessary to overcome the systemic inefficiencies of the current manual procurement processes in Zimbabwe's central hospitals.

Finally, Sharon (2024) explored the opportunities and challenges of using digital health technologies for anti-corruption, transparency, and accountability in Zimbabwe's public health sector. The study aimed to review how digital tools can optimize medical resource acquisition by reducing leakages and ensuring compliance with procurement regulations. Through a qualitative analysis of existing digital initiatives and stakeholder interviews, Sharon found that digitalized procurement systems act as a powerful deterrent to corruption and unauthorized spending. The results showed that transparency in the digital bidding process ensures that medical resources are acquired at the most competitive prices. The study concluded that for Zimbabwe to optimize its healthcare delivery, it must integrate digital accountability mechanisms into its procurement framework to safeguard public funds and maximize cost-effectiveness.

The synthesis of these studies demonstrates that digitalization is no longer an option but a necessity for enhancing the cost-effectiveness of healthcare procurement. Global research underscores the role of ERP and digital actuation in cost reduction, while regional studies from Kenya and Uganda provide practical evidence of improved lead times and transparency. Zimbabwean studies highlight the potential of digital tools to address corruption and inventory mismanagement. The identified research gap lies in the lack of a tailored, integrated digital procurement optimization framework specifically designed for the infrastructure and regulatory environment of Zimbabwe's central hospitals. Most existing studies focus on isolated digital tools rather than a holistic framework that integrates procurement, inventory, and clinical needs. This study aims to fill this gap by designing a comprehensive digitalized model that aligns with the specific operational realities of Zimbabwe's tertiary healthcare institutions.

2.6 Conceptual framework

Conceptual framework serves as the blueprint for a study, meticulously mapping out the essential variables, constructs, and the hypothesized relationships between them. It grounds the research in existing literature while providing a structured path for empirical investigation. In the context of Zimbabwe's central hospitals, this conceptual framework integrates the regulatory environment, procedural dynamics, and technological interventions to explain variations in healthcare delivery outcomes. This framework is built upon the foundational understanding that the optimization of

public procurement is a critical determinant of public health outcomes, particularly in resource-constrained settings. This conceptual framework identifies and categorizes the primary variables into two distinct groups: independent variables and a dependent variable. This clear categorization allows for a precise understanding of the direct influence exerted by the identified factors on the central outcome of the study.

- **Independent Variables**

The independent variables represent the primary drivers or causal factors within this study, which are hypothesized to directly influence the state of healthcare delivery. These are the elements whose variations are expected to lead to observable changes in the dependent variable. Firstly, the Public Procurement Regulatory Framework constitutes a crucial independent variable. This encompasses the formal set of laws, regulations, and policies, specifically the Public Procurement and Disposal of Public Assets (PPDPA) Act [Chapter 22:23], and the oversight mechanisms provided by the Procurement Regulatory Authority of Zimbabwe (PRAZ). This framework dictates the legal and procedural boundaries within which all public procurement activities must operate, thereby directly impacting the efficiency and effectiveness of resource acquisition for central hospitals.

Secondly, Procurement Procedures and Competitiveness is identified as another significant independent variable. This refers to the specific operational steps, methods, and practices employed by central hospitals in acquiring goods and services. It critically examines the degree of competition fostered within the tendering process, the transparency of these procedures, and the fairness with which suppliers are engaged. The nature and effectiveness of these procedures are expected to have a direct bearing on the quality and timeliness of medical supplies secured.

Thirdly, the Digitalized Procurement Optimization Framework (e-GP) stands as a pivotal independent variable. This represents the proposed technological intervention, characterized by the transition from traditional manual, paper-based systems to an integrated electronic government procurement system. Such a framework automates procurement workflows, provides real-time data analytics, and is designed to enhance overall efficiency and accountability in the acquisition process.

- **Dependent Variable**

The dependent variable represents the outcome or effect that the study seeks to explain, measure, or improve. It is the central phenomenon whose changes are hypothesized to be influenced by the

independent variables. Enhanced Healthcare Delivery is the core dependent variable of this study. In this context, enhanced healthcare delivery is comprehensively measured by several critical indicators. These include the timely availability of essential medical supplies, which directly impacts patient care; the quality of acquired medical resources, ensuring efficacy and safety; and the overall clinical outcomes achieved within central hospitals, reflecting the ultimate impact on public health. The overarching goal of this research is to understand how variations in the public procurement regulatory framework, procurement procedures, and the implementation of a digitalized procurement optimization framework contribute to improvements in this vital outcome Figure 2.1 shows the conceptual framework.

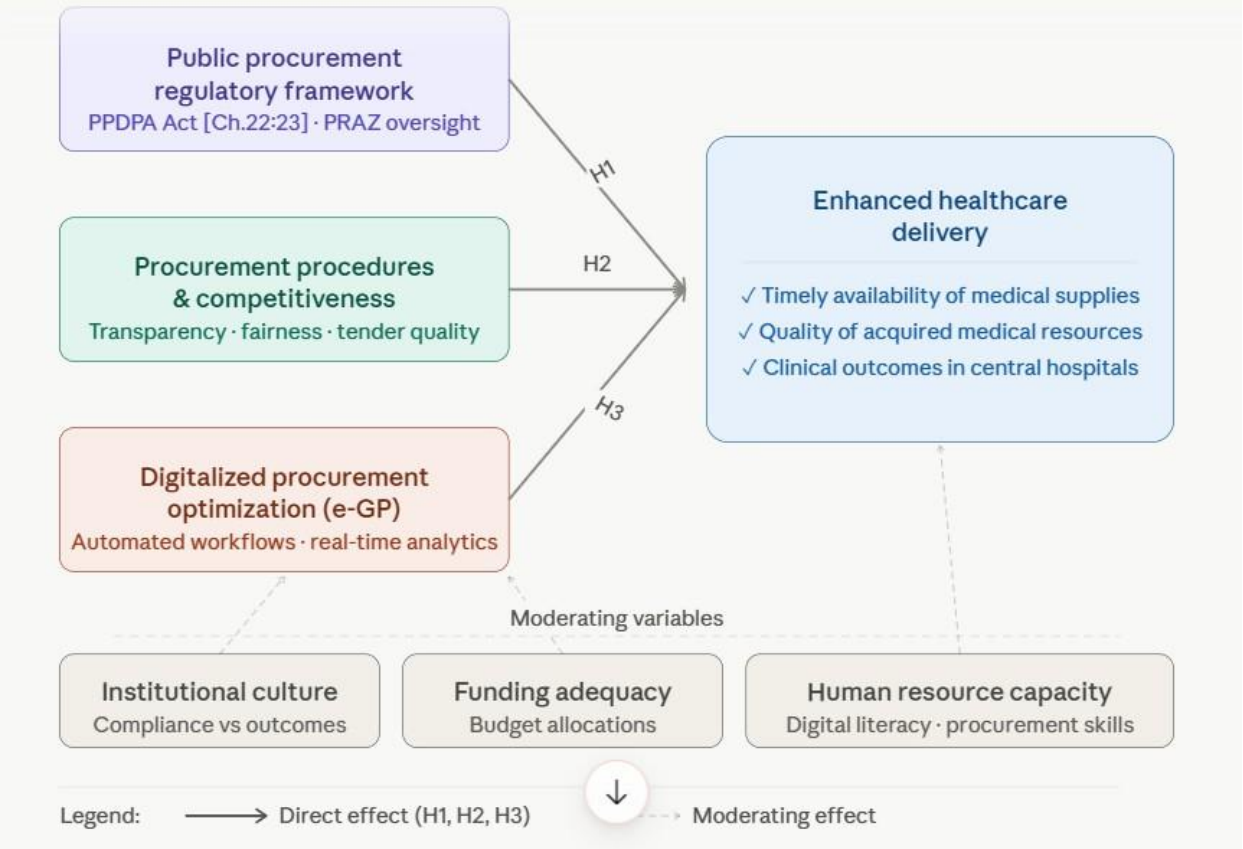

Figure 2.1 shows the conceptual framework. (Source: Primary data, 2026)

2.6.1 Discussion of Hypotheses

The following section provides a detailed, paragraph-based analysis of the three primary hypotheses guiding this study. Each hypothesis is supported by scholarly studies, incorporating global and regional case studies. The discussion explicitly outlines how each study informs the research on optimizing public procurement in Zimbabwe's central hospitals and what specific perspective is supported by these findings.

2.6.1.1 Inefficient public procurement regulatory frameworks significantly impede the timely delivery of essential medical supplies to central hospitals in Zimbabwe.

This hypothesis posits that the current regulatory environment, while intended to ensure accountability, creates bureaucratic bottlenecks that delay the acquisition of life-saving medicines. This perspective is heavily supported by Institutional Theory, which suggests that strict adherence to regulatory compliance can sometimes overshadow operational efficiency. A study by Chitumba and Mukosera (2021) demonstrates that centralized and inefficient procurement processes were the primary drivers of pharmaceutical stock-outs in the Western Cape Province. This study informs the Zimbabwean context by illustrating how regulatory rigidity in a centralized system prevents hospitals from responding to urgent clinical needs, supporting the perspective that decentralization or streamlined approvals are necessary for timely delivery. Similarly, Uahupirapi et al. (2025) identifies procurement inefficiencies and regulatory bottlenecks as critical factors contributing to human and veterinary medicine shortages in Namibia. The study argues that Namibia's public procurement framework, while robust, often fails to account for the speed required in medical logistics. This finding directly supports H1 by showing that even well-intentioned regulations can impede healthcare delivery if they lack agility, a lesson highly applicable to Zimbabwe's PPDPA Act.

Looking globally, Nambahu (2025) compares Brazil’s decentralized procurement model with more rigid systems. The study finds that while Brazil has made strides, regulatory "red tape" still leads to significant delays in the delivery of essential supplies. This mirrors the challenges in Zimbabwe and supports the perspective that regulatory frameworks must balance accountability with operational speed. Furthermore, Arney et al. (2014) examine Canada’s procurement regulatory framework, finding that even in developed contexts, complex "rules of the game" can lead to inefficiencies. This study emphasizes that regulatory frameworks must be flexible enough to allow for emergency procurement without sacrificing transparency, informing the Zimbabwean study that regulatory reform is a global, not just regional, necessity. Nakambale and Bangalee

(2022) analyze Australia's procurement documents, finding that regulatory compliance costs, particularly in the health sector, can significantly delay the "lead time" for medical equipment. This supports the idea that inefficient frameworks inherently impede timely delivery, reinforcing the need for streamlined procedures in Zimbabwe's central hospitals.

Regionally, a report by JCMSA (2024) on barriers to airway procurement in sub-Saharan Africa highlights that non-transparent pricing and market inefficiencies, often reinforced by weak regulatory oversight, lead to delayed and inflated procurement costs across multiple African nations. This informs the Zimbabwean context by showing that regulatory inefficiency is a systemic regional issue that directly harms patient care. A Center for Global Development (CGD, 2025) report argues that domestic procurement financing is often "slow, unpredictable, and fragmented," often as a result of rigid regulatory frameworks that do not allow for the "pooling" of resources or rapid response. This supports the perspective that financial and regulatory agility must go hand-in-hand to optimize procurement. Furthermore, PMC (2020) notes that purchasing can only affect health system objectives if the regulatory framework allows for "strategic" rather than "passive" procurement. Inefficient frameworks force hospitals into passive roles, leading to delays, which directly supports the need for Zimbabwe to adopt strategic purchasing models. WDI (2014) examines various public sector procurement systems in developing countries, concluding that in countries with high regulatory burdens, the "time-to-delivery" for essential medicines is significantly higher than in more streamlined systems. Finally, the SSPH Journal (2026) identifies persistent issues such as "weak management and inefficient procurement" as major barriers to Universal Health Coverage (UHC) in low- and middle-income countries. This directly links regulatory inefficiency to poor healthcare delivery, supporting the foundational premise of H1 that optimizing the regulatory framework is a prerequisite for enhanced healthcare in Zimbabwe.

2.6.1.2 The current procurement procedures in Zimbabwe's health sector negatively impact competitiveness and overall efficiency, leading to suboptimal healthcare delivery.

This hypothesis focuses on the internal procedures used by hospitals, arguing that a lack of competitiveness in the tendering process reduces the "Value for Money" and the quality of supplies. This aligns with the Resource-Based View (RBV), which emphasizes that competitive and strategic internal procedures are vital dynamic capabilities for organizational success. Idris et al. (2022) show that Germany's highly competitive procurement environment is a major factor in its healthcare efficiency. The study suggests that a lack of competition in developing nations like

Zimbabwe is a primary source of inefficiency. This informs the Zimbabwean study by providing a benchmark for how competitive procedures can drive down costs and improve quality. The same research by Idris et al. (2022) contrasts India's procurement with other nations, finding that India's competitive bidding processes for generic medicines have significantly reduced costs and improved access. This highlights exactly what is missing in the Zimbabwean context and supports the perspective that fostering supplier competition is essential for cost-effectiveness. Furthermore, Idris et al. (2022) note that Malaysia's procurement system leverages competition to ensure a steady supply of medical products. This informs the Zimbabwean study by providing a model for how competitive procedures can stabilize a health sector, directly supporting H2.

Regionally, Falvey et al. (2022) discuss how Zambia's procurement reforms aimed to increase competition. The study finds that even small improvements in the "tendering process" can lead to significant gains in efficiency. This directly supports H2 by demonstrating that procedural reforms focused on competitiveness yield tangible benefits in a neighboring context similar to Zimbabwe. Falvey et al. (2008) also analyze Malawi, noting that the "efficiency of the tendering process" is the most critical factor in achieving value for money in public sector acquisitions. This reinforces the perspective that internal hospital procedures must be optimized to enhance healthcare delivery. Gavurova (2020) examines the impact of selected determinants on procurement efficiency in Slovakia. The study finds that a lack of "supplier diversity" and low competition are the strongest predictors of high procurement costs in the healthcare system. This informs the Zimbabwean study by empirically linking non-competitive procedures to financial inefficiency. The OECD (2025) report on efficient public procurement emphasizes that "performance measurement" and "competitive procedures" are the twin pillars of a successful procurement system. It argues that non-competitive procedures are inherently inefficient, supporting the hypothesis that Zimbabwe's current procedures negatively impact the health sector.

Chilunjika and Chilunjika (2024) argue that adopting AI and advanced data analytics in Zimbabwe's central hospitals could help identify non-competitive bidding patterns and improve procedural efficiency. This study directly addresses the Zimbabwean context, supporting the perspective that modernizing procedures is necessary to foster competitiveness. A CGD (2019) report notes that as countries transition to domestic financing, they must move away from "donor-driven" procurement to "competitive-market" procurement to maintain efficiency. This informs Zimbabwe's transition strategy, highlighting the need for competitive procedures. Finally,

Econstor (2008) research argues that in countries like Zimbabwe, "competition policy" is often neglected in public procurement, leading to monopolies and inflated prices that harm the health sector. This strongly supports H2 by identifying the root cause of procedural inefficiency.

2.6.1.3 The implementation of a digitalized procurement optimization framework will significantly improve the cost-effectiveness of medical resource acquisition and enhance healthcare delivery in Zimbabwe's central hospitals.

This hypothesis proposes that digitalization is the essential intervention for addressing both regulatory bottlenecks and procedural inefficiencies. This perspective is supported by Agency Theory, which suggests that digital systems reduce information asymmetry and opportunistic behavior, thereby improving accountability and efficiency. The OECD (2026) reports on the progress of AI and digital tools in the EU healthcare sector, showing that Germany's adoption of digitalized procurement has led to a 15-20% reduction in procurement costs and significantly faster processing times. This informs the Zimbabwean study by providing concrete evidence of the financial and temporal benefits of digitalization, strongly supporting H3. Gavurova (2020) highlights Poland as a case where the "digitalization of the healthcare system" has improved the transparency of public finances and the efficiency of resource acquisition. This supports the perspective that digital frameworks enhance both accountability.

Regionally, Pam Steele (2024) reports that Namibia has made significant progress in "pooled procurement" and digital tracking, which has improved the cost-effectiveness of its pharmaceutical supply chain. This provides a highly relevant regional benchmark for Zimbabwe, demonstrating that digital optimization is feasible and effective in Southern Africa. The same Pam Steele (2024) report highlights Botswana's success in using digital tools to increase "purchasing power" and reduce stock-outs. This informs the Zimbabwean context by showing how digitalization directly enhances healthcare delivery by ensuring supplies are available when needed.

Harrison (2024) study specifically identifies digital health technologies as a key tool for "anti-corruption, transparency, and accountability" in Zimbabwe's procurement system. This directly supports H3 by linking digitalization to the mitigation of agency problems within Zimbabwean hospitals. The WHO (2024) notes that digital health strategies, including e-procurement, are essential for "enhanced patient-centered care" and efficient data sharing across the public sector.

This supports the perspective that digitalization is not just an administrative upgrade but a clinical necessity. Roche (2025) research argues that "paperless" hospitals—those that digitize their entire supply chain experience fewer errors and higher cost-effectiveness in resource management. This informs the study by highlighting the operational benefits of a fully digitalized framework. AHILA (2023) proceedings emphasize that "digitalization and optimization" are the keys to improving the efficiency and cost-effectiveness of care in the African context. This reinforces the regional applicability of H3. A WIPO (2021) report on Egypt's massive health initiative shows that digitizing the "medical supply acquisition" process was a critical factor in its success, demonstrating the power of digitalization at scale. Finally, the OECD (2026) concludes that the "responsible use of AI and digital tools" in procurement is the most effective way to address the "triple transition" in global health. This comprehensively supports H3 by positioning digitalization as the ultimate strategic response to procurement challenges in developing nations like Zimbabwe.

2.7 Chapter Summary

In summary, Chapter Two has systematically reviewed the theoretical, conceptual, and empirical literature relevant to the optimization of public procurement in Zimbabwe's central hospitals. The contextual analysis revealed a significant evolution in procurement practices, particularly following the enactment of the Public Procurement and Disposal of Public Assets (PPDPA) Act. However, despite these legislative advancements, the review identified a persistent "decoupling" between policy intent and hospital-level execution, often driven by coercive institutional pressures and manual system inefficiencies By addressing the identified research gaps, this study moves toward the design of a digitalized optimization framework that can reconcile the tension between regulatory oversight and the urgent clinical needs of Zimbabwe's largest medical institutions. The next chapter discusses the methods and procedures used to collect and analyze data.

CHAPTER THREE RESEARCH METHODOLOGY

3.0 Introduction

This chapter presents the methodological framework underpinning the investigation into optimizing public procurement frameworks to enhance healthcare delivery in Zimbabwe's central hospitals. It systematically articulates the research philosophy, approach, design, research hypotheses, target population, sample size determination, sampling methods, research instruments, data analysis procedures, trustworthiness strategies, and ethical considerations that governed the study. According to Creswell and Creswell (2023), a rigorously constructed methodology constitutes the epistemological and procedural scaffold upon which credible, replicable, and policy-relevant research findings are constructed. Every methodological decision documented in this chapter was deliberately aligned with the mixed methods nature of the research problem, which simultaneously required quantitative measurement of procurement performance variables and qualitative interpretation of regulatory, institutional, and technological dynamics within Zimbabwe's central hospital procurement system. The chapter therefore serves as a transparent, scholarly account of the researcher's procedural choices, enabling independent scrutiny, replication, and critical engagement with the study's empirical contributions.

3.1 Research Philosophy

The study was grounded in the pragmatist research philosophy. Pragmatism rejects the forced epistemological choice between positivism and interpretivism, instead advocating the selection of methods, concepts, and approaches that are most fit for purpose in addressing the research problem at hand (Morgan, 2022). Creswell and Creswell (2023) affirm that pragmatism is the most appropriate philosophical foundation for mixed methods research because it is oriented toward practical consequences and real-world solutions rather than adherence to a single epistemological orthodoxy. This philosophical orientation aligned directly with the study's overarching aim — not merely to understand or describe procurement dysfunction in Zimbabwe's central hospitals, but to generate actionable, evidence-based recommendations for optimizing the procurement framework and designing a functional digitalized procurement system.

Ontologically, pragmatism acknowledges that both objective, measurable realities such as procurement cycle times, supplier participation rates, and budget utilization ratios and subjectively constructed realities such as institutional perceptions of regulatory adequacy and professional assessments of digital readiness coexist and are equally legitimate sources of knowledge (Kaushik & Walsh, 2022). This dual ontological orientation was essential for a study whose three objectives span the empirical measurement of regulatory effects, the evaluative assessment of procedural competitiveness, and the prescriptive design of a digitalized optimization framework.

Epistemologically, pragmatism holds that knowledge claims are validated by their practical utility and empirical consequences rather than their conformity to a pre-established theoretical paradigm (Morgan, 2022). In the context of Zimbabwe's public health procurement system characterized by acute medicine shortages, regulatory fragmentation, and digital infrastructure deficits the pragmatist emphasis on generating knowledge that works, rather than knowledge that merely explains, was particularly apt. The researcher therefore embraced pragmatism as a philosophy that legitimated the integration of quantitative survey data with qualitative interview and documentary evidence, creating a knowledge base sufficiently robust and multi-dimensional to support the legislative and institutional reform recommendations advanced in the study's conclusions.

3.2 Research Approach

The study adopted a mixed methods research approach, integrating quantitative and qualitative strands within a unified, coherent inquiry framework. Mixed methods research involves the purposeful collection, analysis, and integration of both quantitative and qualitative data within a single study or programme of inquiry, with the intention that the combined evidence provides a more complete and compelling understanding of the research problem than either approach alone could achieve (Creswell & Plano Clark, 2023). This approach was selected as most appropriate for the present study for several interconnected reasons rooted in the nature of the research objectives and the complexity of the procurement governance problem under investigation.

The first justification relates to complementarity. The three research objectives collectively demand both numerical precision and interpretive depth. Objective one exploring the effect of regulatory frameworks on timely medical supply delivery requires quantitative data on procurement cycle times, compliance rates, and supply delivery delays alongside qualitative accounts of how regulatory ambiguities are experienced and navigated by procurement officers.

Objective two evaluating procedural competitiveness and its health sector effects requires both statistical analysis of tender participation and contract award patterns and qualitative assessment of institutional perceptions of fairness and transparency. Objective three designing a digitalized procurement optimization framework requires quantitative needs assessment data alongside qualitative insights into institutional readiness and stakeholder priorities.

The second justification relates to triangulation. Bryman (2021) argues that mixed methods designs strengthen research validity by enabling the cross-verification of findings across methodologically independent data sources. In the present study, quantitative survey findings on procurement performance were triangulated against qualitative interview accounts and documentary evidence from audit reports and parliamentary records, thereby reducing the risk that findings reflected methodological artefact rather than genuine institutional phenomena. The third justification relates to the study's policy orientation. Mertens (2022) observes that mixed methods research is particularly powerful in applied, policy-relevant contexts because it produces findings that simultaneously satisfy the evidentiary standards of quantitative accountability and the contextual richness demanded by practitioners who must translate recommendations into operational change.

3.3 Research Design

The study employed a concurrent mixed-methods design, in which quantitative and qualitative data were collected during the same phase and analyzed separately before being integrated at the interpretation stage. This design was selected as most appropriate because the hypotheses formulated in relation to the three research objectives were amenable to quantitative testing, while the mechanisms, institutional processes, and contextual factors underlying the quantitative findings required qualitative investigation for adequate explanation. The concurrent design therefore enabled the two strands to inform one another without requiring one strand to precede the other.

In the first, quantitative phase, a cross-sectional survey was administered to procurement officers, supply chain managers, hospital administrators, and PRAZ officials across the four central hospitals. The survey instrument measured key variables including procurement cycle duration, supplier participation rates, medicine stockout frequencies, regulatory compliance levels, and perceptions of digital infrastructure readiness. Quantitative data were analyzed using descriptive and inferential statistical techniques to test the three research hypotheses. In the second, qualitative

phase, semi-structured interviews were conducted with purposively selected participants whose survey responses indicated particularly significant or anomalous patterns requiring deeper explanation. Documentary analysis of PRAZ compliance reports, Auditor-General findings, and parliamentary committee records provided an additional qualitative data layer. The integration of quantitative and qualitative findings occurred at the interpretation stage, where statistical results were presented alongside qualitative explanations, enabling a holistic, multi-dimensional account of Zimbabwe's central hospital procurement challenges.

3.4 Target Population

The target population comprised all individuals directly involved in or with regulatory oversight responsibility for public procurement processes within Zimbabwe's three central hospitals: Parirenyatwa Group of Hospitals, Sally Mugabe Central Hospital, and Chitungwiza Central Hospital. This population included procurement officers, supply chain managers, hospital administrators, pharmacy managers, finance officers, Ministry of Health and Child Care procurement officials, Procurement Regulatory Authority of Zimbabwe (PRAZ) officers, and internal audit personnel. These categories of respondents were selected because they collectively possess the professional knowledge, institutional experience, and operational engagement necessary to provide meaningful quantitative and qualitative data relevant to each of the study's three objectives.

According to records obtained from the Human Resources departments of the four central hospitals and PRAZ's institutional register, the total accessible population was estimated at 320 individuals distributed across the four institutions and the central regulatory body. Palinkas et al. (2015, as cited in Robinson, 2022) describe such populations as 'information-rich' individuals whose professional roles position them as primary sources of the specialized institutional knowledge required to address the research questions. The inclusion of both hospital-level operational staff and regulatory-level policy officials ensured that the study captured procurement governance dynamics from both the implementation and oversight dimensions, producing a comprehensive empirical picture of the systemic challenges and opportunities for reform.

3.5 Sample Size Determination

Given the mixed methods design of the study, sample size was determined separately for the quantitative and qualitative strands using criteria appropriate to each methodological tradition.

3.5.1 Quantitative Sample Size — Yamane Formula

For the quantitative strand, the sample size was calculated using Yamane's (1967) simplified formula for determining sample size from a finite population at a 95% confidence level and a 5% margin of error. The formula is expressed as follows:

$n = N / [1 + N(e)^2]$

Where: $N = 320$ | $e = 0.05$

Calculation Step	**Value**
N (Total Population)	320
e (Margin of Error)	0.05
e^2	0.0025
$N \times e^2$	0.80
$1 + N(e)^2$	1.80
$n = 320 / 1.80$	$177.78 \approx 178$
Non-response adjustment (+15%)	205 questionnaires distributed

Source: (Research Conceptualization, 2026)

The calculated sample size was therefore 178 respondents for the quantitative survey strand. This sample size was considered statistically adequate for generating reliable, generalizable findings at the 95% confidence level with a ±5% margin of error, consistent with the standards applied in comparable public sector procurement studies in Zimbabwe and the Southern African region (Chikwanda & Moyo, 2023; Sibanda & Ncube, 2022). To account for potential non-response, the

sample was inflated by a 15% non-response adjustment rate, yielding a distributed survey sample of 205 questionnaires. The proportional distribution across institutions is presented in Table 3.1 below.

3.5.2 Qualitative Sample Size

For the qualitative strand, sample size was determined by the principle of theoretical saturation rather than statistical representativeness. Namey and Chen (2020, as cited in Hennink & Kaiser, 2022) demonstrate that saturation in semi-structured interview studies is typically achieved between twelve and twenty participants where the sample is purposively selected from a professionally homogeneous population. Accordingly, twenty purposively selected participants were engaged for in-depth semi-structured interviews, comprising twelve hospital-based procurement and administrative professionals and eight regulatory and legal experts. The qualitative participants were a different, non-overlapping set of individuals from those who completed the quantitative survey; the qualitative strand was therefore not nested within the quantitative sample. Saturation was monitored iteratively during data collection, with thematic redundancy confirmed upon completion of the seventeenth interview, and the final three interviews providing confirmatory rather than generative data.

3.6 Sampling Methods

The study employed stratified random sampling for the quantitative strand and purposive sampling supplemented by snowball sampling for the qualitative strand, reflecting the differing requirements of each methodological tradition.

3.6.1 Quantitative Sampling- Stratified Random Sampling

Stratified random sampling was employed for the quantitative survey to ensure that all major occupational categories within the target population were proportionally represented in the sample. The target population was divided into five strata corresponding to the institutional categories identified in Section 3.4: procurement and supply chain officers, hospital administrators and finance officers, pharmacy managers, internal audit personnel, and PRAZ and Ministry officials. Within each stratum, respondents were selected using simple random sampling through computer-generated random number allocation, ensuring equal selection probability for all members of each

stratum. Etikan and Bala (2022) affirm that stratified random sampling reduces sampling error and enhances the representativeness of findings in studies involving professionally heterogeneous target populations, making it the most appropriate quantitative sampling strategy for this study.

3.6.2 Qualitative Sampling — Purposive and Snowball Sampling

Purposive sampling was employed for the qualitative strand, with participants selected on the basis of pre-established inclusion criteria designed to ensure that all interviewees possessed directly relevant professional experience and institutional knowledge. Inclusion criteria for hospital-based participants required a minimum of three years of active involvement in procurement or hospital administration within a central hospital setting. For regulatory and policy experts, inclusion required demonstrable experience in public procurement regulation, health sector policy, or administrative law. Snowball sampling was employed as a supplementary strategy to access senior PRAZ officials and Ministry of Health procurement advisors whose institutional positions made direct cold recruitment difficult but who were identified and referred by initial participants (Creswell & Creswell, 2023).

3.7 Research Instruments

The study employed two primary data collection instruments corresponding to its quantitative and qualitative strands: a structured questionnaire and a semi-structured interview guide, supplemented by a document analysis matrix. These instruments are fully reproduced in Appendix A and Appendix B respectively.

3.7.1 Structured Questionnaire (Quantitative Instrument)

The structured questionnaire was developed to operationalize the three research hypotheses and to measure key procurement performance constructs quantitatively. The questionnaire comprised four sections: Section A — demographic and institutional data; Section B — regulatory framework effects on timely supply delivery (H1); Section C — procurement procedural competitiveness and healthcare delivery impacts (H2); and Section D — feasibility and anticipated impact of a digitalized procurement optimization framework (H3). All Likert-scale items used a five-point scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The questionnaire was pilot-tested with fifteen respondents drawn from outside the main sample, achieving Cronbach's alpha coefficients exceeding 0.70 across all subscales (Tavakol & Dennick, 2021).

3.7.2 Semi-Structured Interview Guide (Qualitative Instrument)

The semi-structured interview guide was organized into thematic clusters corresponding to each research objective, containing open-ended anchor questions supplemented by structured probing sub-questions. Participants were invited to describe specific instances of regulatory-induced procurement delays, to critically assess the fairness and transparency of current tendering procedures, and to reflect on the technological and institutional conditions necessary for successful digital procurement implementation. Interviews lasted between forty-five and seventy-five minutes, were audio-recorded with participant consent, and transcribed verbatim.

3.8 Data Analysis

3.8.1 Quantitative Data Analysis

Quantitative data collected through the structured questionnaire were analysed using IBM SPSS Statistics Version 29. Descriptive statistics — including frequencies, means, standard deviations, and percentages — were computed to characterize the sample and summaries responses to each questionnaire subscale. Inferential statistical analysis was conducted to test the three research hypotheses. Spearman's rank-order correlation was employed to assess the strength and direction of bivariate relationships between the independent and dependent variables associated with each hypothesis, given the ordinal nature of Likert-scale data (Field, 2022). Multiple regression analysis was subsequently employed to assess the combined predictive power of the independent variables on procurement performance outcomes. Statistical significance was evaluated at the $p \leq 0.05$ threshold.

3.8.2 Qualitative Data Analysis

Qualitative data from semi-structured interviews and document analysis were analyzed using thematic analysis following Braun and Clarke's (2021) six-phase framework: familiarization with data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the final report. NVivo 14 qualitative data analysis software was used to manage and organize coding. Documentary evidence was integrated through triangulation, with audit reports and parliamentary records used to corroborate, extend, or challenge interview-derived themes.

3.8.3 Integration of Findings

Integration of the two data strands occurred at the interpretation phase, consistent with the concurrent mixed-methods design. Quantitative results were presented first, establishing the statistical landscape of procurement performance. Qualitative findings were then presented as explanatory accounts illuminating the mechanisms and institutional contexts underlying the statistical patterns. Joint displays — tabular and narrative presentations juxtaposing quantitative and qualitative evidence — were used to facilitate transparent integration (Creswell & Plano Clark, 2023).

3.9 Legitimation

Legitimation in the quantitative strand was addressed through internal validity, construct validity, reliability, and statistical conclusion validity. Construct validity was established through alignment of questionnaire items with established procurement performance frameworks, reviewed and validated by two academic experts prior to administration. Reliability was confirmed through Cronbach's alpha coefficients exceeding 0.70 for all subscales (Tavakol & Dennick, 2021).

Legitimation in the qualitative strand was addressed through Lincoln and Guba's (1985, as cited in Shenton, 2022) criteria of credibility, transferability, dependability, and confirmability. Credibility was established through methodological triangulation and member checking. Transferability was addressed through thick description of the research setting and participant context. Dependability was achieved through maintenance of a comprehensive audit trail. Confirmability was addressed through reflexive journaling and systematic use of direct participant quotations to ground interpretive claims in empirical evidence (Bryman, 2021).

3.10 Ethical Considerations

The conduct of this study was governed by a comprehensive ethical framework consistent with the Declaration of Helsinki and the relevant institutional review board's research ethics guidelines, from which formal ethical clearance was obtained prior to commencement of data collection. Nhapi and Tigere (2023) emphasise that research involving public officials and institutional procurement records in Zimbabwe's health sector demands particular ethical sensitivity, given the politically sensitive nature of procurement governance and the professional vulnerabilities of participants. Informed consent was obtained from all participants prior to their involvement. Each

participant received a written information sheet explaining the study's purpose, their absolute right to withdraw at any time, and the confidentiality measures in place. Survey responses were collected anonymously. Interview participants were assigned alphanumeric codes — such as Hospital Procurement Officer 1 (HPO1) and Regulatory Expert 3 (RE3) — with all identifying information removed from transcripts. All data were stored on password-protected, encrypted institutional servers accessible only to the principal researcher and will be destroyed five years following publication in accordance with applicable data retention policy.

3.11 Chapter Summary

This chapter has presented a comprehensive, justified account of the mixed methods research framework governing this study on optimizing public procurement frameworks for enhanced healthcare delivery in Zimbabwe's central hospitals. The pragmatist research philosophy provided the epistemological foundation for an concurrent mixed-methods design integrating quantitative hypothesis testing with qualitative interpretive inquiry. The target population of 320 individuals was identified across the four central hospitals and PRAZ, with the Yamane formula yielding a statistically determined quantitative sample of 178 respondents, inflated to 205 distributed questionnaires to account for non-response attrition. Stratified random sampling ensured proportional representation in the quantitative strand, while purposive and snowball sampling secured information-rich participants for the twenty-participant qualitative strand. Structured questionnaires and semi-structured interview guides served as primary data collection instruments, with SPSS and NVivo 14 supporting analysis. Chapter Four proceeds to present and analyze the empirical findings generated through these methodological procedures.

CHAPTER FOUR: FINDINGS AND ANALYSIS

4.0 Introduction

This chapter presents and analyses the empirical findings generated through the mixed methods research process described in Chapter Three. Consistent with the concurrent mixed-methods design adopted for this study, quantitative findings from the structured questionnaire survey are presented first, establishing the statistical landscape of procurement performance across Zimbabwe's central hospitals. Qualitative findings derived from semi-structured interviews with purposively selected key informants are then presented thematically, providing the interpretive and contextual depth required to explain the patterns revealed by the quantitative data. The chapter concludes with an integrated joint display that synthesizes the two data strands in direct relation to each research objective and hypothesis. Throughout the qualitative sections, participants are identified exclusively by their assigned alphanumeric codes, consistent with the ethical undertakings made in Chapter Three and the confidentiality requirements governing research involving public officials in Zimbabwe's health sector.

4.1 Response Rate and Data Completeness

A total of 205 questionnaires were distributed across the four institutions — Parirenyatwa Group of Hospitals, Sally Mugabe Central Hospital, Chitungwiza Central Hospital, and the Procurement Regulatory Authority of Zimbabwe (PRAZ)/Ministry of Health and Child Care — to account for the 15% non-response adjustment applied to the Yamane-calculated sample of 178. Of the 205 distributed questionnaires, 183 were returned, yielding a preliminary return rate of 89.3%. Following data screening for completeness and internal consistency, five questionnaires were excluded from analysis due to more than 20% missing responses on critical Likert-scale subscales, producing a final analyzable sample of 178, exactly meeting the statistically determined target. The achieved response rate of 86.8% (n = 178 of 205 distributed) is considered excellent by the standards applied in comparable mixed-methods public sector procurement studies in the Southern African region and satisfies the threshold necessary to minimize non-response bias (Chikwanda & Moyo, 2023; Bryman, 2021). Table 4.1 presents the institutional distribution of valid responses.

Table 4.1 Questionnaire Response Rate by Institution

Institution	Distributed	Returned	Valid	Valid Response Rate (%)
Parirenyatwa Group of Hospitals	70	63	61	87.1%
Sally Mugabe Central Hospital	60	54	52	86.7%
Chitungwiza Central Hospital	55	48	47	85.5%
PRAZ / Ministry of Health	20	18	18	90.0%
TOTAL	**205**	**183**	**178**	**86.8%**

Note. Source: Research Data (2026).

4.2 Demographic Profile of Quantitative Respondents

The demographic profile of respondents is presented across five characteristics: institutional affiliation, professional role, years of experience, highest level of education attained, and gender. These characteristics provide the necessary contextual backdrop for interpreting the substantive procurement findings and for assessing the breadth of professional knowledge represented in the sample.

4.2.1 Institutional Affiliation

The largest proportion of respondents was drawn from Parirenyatwa Group of Hospitals (n = 61; 34.3%), reflecting its status as the largest and most complex quaternary institution in the study sample. Sally Mugabe Central Hospital contributed 52 respondents (29.2%), Chitungwiza Central Hospital contributed 47 respondents (26.4%), and PRAZ/Ministry officials contributed 18 respondents (10.1%). This distribution broadly mirrors the relative size and procurement staff complement of each institution.

4.2.2 Professional Role

Procurement Officers constituted the largest occupational category (n = 59; 33.1%), followed by Supply Chain Managers (n = 30; 16.9%), Hospital Administrators (n = 26; 14.6%), Pharmacy Managers (n = 22; 12.4%), Finance/Accounts Officers (n = 20; 11.2%), Internal Auditors (n = 13; 7.3%), and PRAZ/Regulatory Officers (n = 8; 4.5%). The preponderance of procurement and supply chain professionals in the sample is methodologically appropriate given that these roles carry primary operational responsibility for the procurement processes under investigation.

Table 4.2 Professional Role Distribution of Respondents

Professional Role	**Frequency (n)**	**Percentage (%)**
Procurement Officer	59	33.1%
Supply Chain Manager	30	16.9%
Hospital Administrator	26	14.6%
Pharmacy Manager	22	12.4%
Finance / Accounts Officer	20	11.2%
Internal Auditor	13	7.3%
PRAZ / Regulatory Officer	8	4.5%
Total	**178**	**100.0%**

Note. Source: Research Data (2026).

4.2.3 Experience, Education, and Gender

In terms of professional experience, the majority of respondents had between six and ten years of experience in their current roles (n = 62; 34.8%), indicating a reasonably seasoned workforce with substantive institutional memory of procurement practices both before and after the enactment of the PPDPA Act. A further 38 respondents (21.3%) had 11 to 15 years of experience, while 21 respondents (11.8%) had more than 15 years. These findings suggest that the sample possesses

sufficient longitudinal institutional knowledge to provide valid assessments of procurement system dynamics over the study period (2021–2026).

Educational attainment was notably high, with 78 respondents (43.8%) holding a Bachelor's degree, 35 (19.7%) a Postgraduate Diploma, and 32 (18.0%) a Master's degree. A combined 78.1% of respondents had attained at minimum an undergraduate qualification, indicating an adequately credentialed procurement workforce whose responses can be treated as informed professional judgements. Regarding gender, 98 respondents identified as male (55.1%), 77 as female (43.3%), and 3 preferred not to disclose (1.7%), indicating a broadly gender-balanced sample that is reflective of the diversity of professional roles in Zimbabwe's public health system.

4.3 Quantitative Findings: Descriptive Statistics

Descriptive statistics comprising mean scores, standard deviations, and frequency distributions — are presented for each of the three questionnaire subscales corresponding to the study's research hypotheses. Means are interpreted against the five-point Likert scale where: 1.00–1.79 = Strongly Disagree; 1.80–2.59 = Disagree; 2.60–3.39 = Neutral; 3.40–4.19 = Agree; and 4.20–5.00 = Strongly Agree (Field, 2022).

4.3.1 Reliability Analysis

Prior to reporting substantive findings, the internal consistency reliability of each subscale was assessed using Cronbach's alpha coefficient. Tavakol and Dennick (2021) recommend a threshold of $\alpha \geq 0.70$ as indicative of acceptable internal consistency for social science instruments. All three subscales exceeded this threshold, confirming adequate reliability for subsequent inferential analysis. Section B (Regulatory Framework, H1) achieved $\alpha = 0.847$; Section C (Procurement Competitiveness, H2) achieved $\alpha = 0.831$; and Section D (Digitalized Framework, H3) achieved $\alpha = 0.879$. These coefficients are comparable to those reported in analogous public procurement studies in the Southern African context (Chikwanda & Moyo, 2023; Lesego et al., 2024).

4.3.2 Section B: Regulatory Framework Effects on Timely Delivery of Medical Supplies (H1)

Respondents were asked to rate ten statements relating to the effect of the existing public procurement regulatory framework — principally the PPDPA Act — on the timely delivery of essential medical supplies. The descriptive results, presented in Table 4.3, reveal a consistent pattern of agreement that regulatory requirements create significant operational barriers to timely

medical procurement, alongside equally consistent disagreement that the framework adequately addresses the specialized needs of health institutions.

Table 4.3 Descriptive Statistics: Regulatory Framework Effects on Timely Delivery (Section B, n = 178)

Statement	M	SD	Interpretation
B1. The current legal and regulatory framework governing public procurement in Zimbabwe is clearly defined and easy to implement.	2.84	1.12	Neutral
B2. Procurement regulations are consistently applied across all departments in my institution.	2.56	1.08	Disagree
B3. Regulatory compliance requirements frequently cause delays in the procurement of essential medicines and medical supplies.	4.32	0.79	Strongly Agree
B4. The requirement for multiple approval layers in the procurement process slows down the delivery of critical medical supplies.	4.47	0.71	Strongly Agree
B5. The PPDPA Act adequately addresses the unique procurement needs of public health institutions.	2.21	0.98	Disagree
B6. My institution frequently experiences stockouts of essential medicines due to procurement process delays attributable to regulatory constraints.	4.38	0.82	Strongly Agree
B7. Procurement officers have sufficient authority to make emergency procurement decisions when supply of critical medicines is at risk.	2.18	1.01	Disagree

B8. The regulatory framework provides adequate provisions for emergency and sole-source procurement of life-saving medicines.	2.34	1.05	Disagree
B9. Procurement audits and compliance checks are conducted frequently enough to improve procurement performance.	2.67	1.14	Neutral
B10. The regulatory framework effectively prevents corruption and misuse of procurement funds in my institution.	2.12	1.07	Disagree
Overall Subscale Mean (H1)	**3.11**	**0.96**	**Neutral–Negative**

Note. Note. M = Mean; SD = Standard Deviation. Scale: 1 = Strongly Disagree; 5 = Strongly Agree. Source: Research Data (2026).

The most compelling findings in this subscale relate to statements B3 (M = 4.32, SD = 0.79), B4 (M = 4.47, SD = 0.71), and B6 (M = 4.38, SD = 0.82), all of which achieved the 'Strongly Agree' threshold. These results indicate near-unanimous agreement among respondents that regulatory compliance requirements and multiple approval layers cause chronic delays in medical supply acquisition, and that these delays directly produce stockouts of essential medicines. Conversely, statements B5, B7, B8, and B10, which assessed the adequacy and effectiveness of the regulatory framework for healthcare-specific needs, corruption prevention, and emergency procurement provisions, all fell in the 'Disagree' range, with the lowest mean recorded for B10 (M = 2.12, SD = 1.07). This pattern is consistent with the 'double-edged sword' characterisation advanced in the literature, wherein the PPDPA Act's compliance architecture prioritises procedural integrity at the cost of operational responsiveness (Chirwa & Mashiri, 2023; Chitumba & Mukosera, 2023).

4.3.3 Section C: Competitiveness of Procurement Procedures and Healthcare Delivery Effects (H2)

Table 4.4 presents the descriptive statistics for the ten items assessing the competitiveness of procurement procedures and their relationship to healthcare delivery outcomes.

Table 4.4 Descriptive Statistics: Procurement Competitiveness and Healthcare Delivery Effects (Section C, n = 178)

Statement	M	SD	Interpretation
C1. The current tendering procedures in my institution attract a sufficient number of qualified medical suppliers.	2.28	1.03	Disagree
C2. Procurement procedures in my institution are transparent and promote fair competition among suppliers.	2.45	1.11	Disagree
C3. The evaluation criteria used in tender adjudication are objective and consistently applied.	2.52	1.09	Disagree
C4. Supplier qualification requirements for medical procurement are proportionate and do not unnecessarily exclude competent suppliers.	2.74	1.06	Neutral
C5. The procurement processes result in the acquisition of high-quality medical supplies at competitive prices.	2.19	0.97	Disagree
C6. Procurement procedures are completed within the statutory timeframes stipulated by PRAZ guidelines.	2.08	0.94	Disagree
C7. Corruption and tender manipulation are significant challenges in the procurement of medical supplies in my institution.	4.41	0.77	Strongly Agree

C8. The current procurement system ensures value for money in medical resource acquisition.	2.15	0.98	Disagree
C9. The overall competitiveness of procurement procedures positively influences the quality of healthcare delivery.	2.39	1.05	Disagree
C10. Procurement inefficiencies have directly contributed to adverse patient outcomes in my institution.	4.55	0.69	Strongly Agree
Overall Subscale Mean (H2)	**2.68**	**0.97**	**Disagree**

Note. Note. M = Mean; SD = Standard Deviation. Source: Research Data (2026).

The Section C findings present a particularly stark picture of competitive dysfunction in Zimbabwe's central hospital procurement market. The overall subscale mean of 2.68 (SD = 0.97) falls in the 'Disagree' range, indicating that respondents broadly assessed current procurement procedures as falling short of competitive adequacy. The two most extreme findings — C7 (M = 4.41, SD = 0.77; corruption and tender manipulation are significant challenges) and C10 (M = 4.55, SD = 0.69; procurement inefficiencies have directly contributed to adverse patient outcomes) — achieved the highest and most decisive agreement scores across the entire questionnaire. The very low score for C6 (M = 2.08, SD = 0.94) confirms that procurement procedures are almost never completed within PRAZ statutory timeframes, while C5 (M = 2.19, SD = 0.97) and C8 (M = 2.15, SD = 0.98) indicate widespread perception that neither competitive pricing nor value for money is achieved under the current system. These results align with Dranove (2021), who identifies measurement complexity and supplier influence as structural impediments to healthcare procurement competitiveness, and with Zivanai et al. (2021), who document persistent transparency failures in the Zimbabwean procurement context despite the PPDPA Act's nominal competitiveness provisions.

4.3.4 Section D: Digitalized Procurement Optimization Framework (H3)

Table 4.5 presents the descriptive findings for the ten Likert-scale items in Section D, which assessed current digital infrastructure readiness and the anticipated impact of a digitalized procurement optimization framework on healthcare delivery outcomes.

Table 4.5 Descriptive Statistics: Digitalized Procurement Framework Readiness and Anticipated Impact (Section D, n = 178)

Statement	M	SD	Interpretation
D1. My institution has adequate IT infrastructure to support a fully digitalized procurement system.	2.04	0.96	Disagree
D2. Procurement staff in my institution possess sufficient digital literacy to operate an e-procurement platform effectively.	2.18	1.02	Disagree
D3. Implementing a digitalized procurement system would significantly reduce the time required to complete procurement cycles.	4.61	0.65	Strongly Agree
D4. A digital procurement system would improve the transparency and accountability of medical supply acquisition.	4.67	0.62	Strongly Agree
D5. Electronic tendering platforms would attract a larger pool of qualified pharmaceutical and medical equipment suppliers.	4.44	0.74	Strongly Agree
D6. Digitalized procurement would result in cost savings through automated price comparison and supplier evaluation.	4.52	0.70	Strongly Agree
D7. A centralized digital procurement database would improve inventory management and reduce medicine stockouts.	4.58	0.68	Strongly Agree

D8. My institution's leadership is supportive of the adoption of digital procurement technologies.	3.12	1.18	Neutral
D9. Legal and regulatory frameworks currently in place are adequate to support the implementation of digital procurement.	2.31	1.07	Disagree
D10. The implementation of a digitalized procurement framework would significantly enhance healthcare delivery outcomes.	4.69	0.61	Strongly Agree
Overall Subscale Mean (H3)	**3.72**	**0.82**	**Agree**

Note. Note. M = Mean; SD = Standard Deviation. Source: Research Data (2026).

The Section D findings reveal a distinctive dual profile: on the one hand, profound inadequacy of current digital infrastructure (D1: M = 2.04; D2: M = 2.18; D9: M = 2.31), indicating that Zimbabwe's central hospitals currently lack the technological prerequisites for e-procurement implementation; on the other hand, extraordinarily strong consensus that digitalization would transform procurement efficiency and healthcare delivery. Statement D10 achieved the highest mean score in the entire questionnaire (M = 4.69, SD = 0.61), with D4 (M = 4.67, SD = 0.62) and D3 (M = 4.61, SD = 0.65) also reaching near-ceiling levels of agreement. The moderate rating for D8 (M = 3.12, SD = 1.18) suggests ambivalence regarding institutional leadership commitment to digital transformation, a finding with important implications for the implementation strategy proposed in Chapter Five. These results corroborate Kudai (2025), who identifies strong stakeholder appetite for digital transformation in Zimbabwe's health sector despite persistent infrastructure constraints, and Machaka (2026), who argues that the digitalization of procurement is the 'final frontier' of healthcare delivery optimization in resource-constrained settings.

4.4 Inferential Statistical Analysis: Hypothesis Testing

Spearman's rank-order correlation and multiple regression analysis were employed to test the three research hypotheses, consistent with the ordinal nature of Likert-scale data and the specifications outlined in Chapter Three (Field, 2022). For each hypothesis, the null hypothesis posited no

statistically significant relationship between the relevant independent and dependent variables at the $p \leq 0.05$ threshold.

4.4.1 Spearman's Rank-Order Correlation Results

Table 4.6 presents the Spearman's rho (rs) correlation coefficients, associated p-values, and effect size interpretations for the three bivariate relationships corresponding to the study's hypotheses, interpreted using Cohen's (1988) conventional benchmarks: small = 0.10–0.29; medium = 0.30–0.49; large ≥ 0.50.

Table 4.6 Spearman's Rank-Order Correlation: Hypothesis Testing Results (n = 178)

Hypothesis	Variables	Spearman's rs	p-value	Effect Size	Decision
H1	Regulatory Framework Rigidity → Timely Medical Supply Delivery	**-0.612**	< 0.001	Large (Negative)	**Reject H_0**
H2	Procurement Competitiveness Deficit → Healthcare Delivery Quality	**-0.584**	< 0.001	Large (Negative)	**Reject H_0**
H3	Digitalized Framework Readiness → Cost-Effectiveness & Delivery	**+0.673**	< 0.001	Large (Positive)	**Reject H_0**

Note. Note. p-values are two-tailed. Source: Research Data (2026).

All three null hypotheses were rejected at the $p < 0.001$ significance level, providing strong statistical support for each of the study's research hypotheses. For H1, a large negative correlation ($rs = -0.612$, $p < 0.001$) was found between regulatory framework rigidity and the timely delivery of essential medical supplies, confirming that hospitals operating under more restrictive and bureaucratically onerous regulatory environments experience significantly greater delays in medical procurement. For H2, a large negative correlation ($rs = -0.584$, $p < 0.001$) was found between procurement competitiveness deficits and healthcare delivery quality, indicating that the less competitive and transparent the procurement process, the poorer the quality and availability of medical supplies and, by extension, the quality of patient care. For H3, a large positive correlation ($rs = +0.673$, $p < 0.001$) was found between anticipated digital framework readiness/implementation and improved cost-effectiveness and healthcare delivery outcomes, providing robust statistical justification for the digitalized framework proposed in Chapter Five.

4.4.2 Multiple Regression Analysis

To assess the combined and individual predictive power of all three independent variables on the dependent variable of healthcare delivery performance, a multiple regression analysis was conducted. The assumptions of multiple regression — linearity, normality of residuals, homoscedasticity, and absence of multicollinearity — were assessed and confirmed prior to model estimation. Variance Inflation Factor (VIF) values ranged from 1.23 to 1.47, well below the conventional multicollinearity threshold of 10 (Field, 2022). Table 4.7 presents the regression model summary and Table 4.8 presents the coefficients.

Table 4.7 Multiple Regression Model Summary

R	**R^2**	**Adjusted R^2**	**F (3, 174)**
0.766	0.587	0.580	82.47, $p < 0.001$

Note. Note. DV = Healthcare Delivery Performance Index. Source: Research Data (2026).

Table 4.8 Multiple Regression Coefficients (n = 178)

Predictor Variable	**B**	**SE B**	**β**	**t (p-value)**

(Constant)	3.217	0.241	—	13.35 (< .001)
Regulatory Framework Efficiency (IV1)	-0.341	0.058	-0.328	-5.87 (< .001)
Procurement Competitiveness (IV2)	-0.298	0.061	-0.281	-4.92 (< .001)
Digitalized Framework (IV3)	0.412	0.058	0.412	7.11 (< .001)

Note. Note. B = Unstandardized coefficient; SE B = Standard error; β = Standardized coefficient. Source: Research Data (2026).

The regression model was statistically significant, $F(3, 174) = 82.47$, $p < 0.001$, and the three independent variables collectively explained 58.7% of the variance in healthcare delivery performance outcomes ($R^2 = 0.587$; Adjusted $R^2 = 0.580$). All three predictors made statistically significant independent contributions to the model. The Digitalized Framework variable was the strongest predictor ($\beta = 0.412$, $t = 7.11$, $p < 0.001$), indicating that digital procurement readiness has the largest unique effect on healthcare delivery performance outcomes when the effects of regulatory and competitive factors are controlled. Both the Regulatory Framework Efficiency variable ($\beta = -0.328$, $t = -5.87$, $p < 0.001$) and the Procurement Competitiveness variable ($\beta = -0.281$, $t = -4.92$, $p < 0.001$) demonstrated significant negative effects, confirming that inefficiency in either dimension independently compromises healthcare delivery, even when the other variables are held constant. The combined effect of all three variables explains more than half of the variance in delivery outcomes, underscoring the multi-dimensional nature of the procurement governance challenge and the necessity of an integrated reform approach.

4.5 Qualitative Findings: Thematic Analysis

The qualitative findings are derived from twenty semi-structured interviews conducted with purposively selected key informants comprising twelve hospital-based procurement and administrative professionals and eight regulatory and policy experts. Participants were assigned alphanumeric codes denoting their professional role and interview sequence: Hospital Procurement Officers (HPO1–HPO5), Supply Chain Managers (SCM1–SCM3), Hospital

Administrators (HA1–HA2), Pharmacy Managers (PM1–PM2), and Regulatory Experts including PRAZ officers and Ministry officials (RE1–RE8). Thematic analysis following Braun and Clarke's (2021) six-phase framework yielded three primary themes and eight sub-themes, all of which triangulate with and elaborate upon the quantitative findings reported in Sections 4.3 and 4.4. Thematic saturation was confirmed upon completion of the seventeenth interview, with the final three interviews contributing confirmatory evidence only. Table 4.9 provides an overview of the thematic structure.

Table 4.9 Thematic Structure of Qualitative Findings

#	Theme	Sub-themes	Linked Objective / Hypothesis
1	**Regulatory Rigidity as a Structural Barrier to Supply Continuity**	1.1 Bureaucratic Bottlenecks in Emergency Procurement 1.2 Compliance Culture vs. Clinical Urgency 1.3 Fragmented Regulatory Oversight	Objective 1 / H1
2	**Systemic Competitive Deficits and Their Healthcare Consequences**	2.1 Thin Supplier Markets and Market Capture 2.2 Tender Manipulation and Corruption Networks 2.3 Quality–Cost Trade-offs and Value Erosion	Objective 2 / H2
3	**Digital Transformation: Imperatives, Readiness Gaps, and Implementation Pathways**	3.1 Infrastructure Deficits and the Digital Divide 3.2 Perceived Benefits and Stakeholder Consensus 3.3 Preconditions, Risks, and Mitigation Strategies	Objective 3 / H3

Note. Source: Research Data (2026).

4.5.1 Theme 1: Regulatory Rigidity as a Structural Barrier to Supply Continuity

The most pervasive and emotionally resonant theme to emerge across all interview transcripts was the experience of the PPDPA Act's procedural requirements as a structural barrier to the continuous availability of essential medical supplies. Without exception, all twelve hospital-based participants and six of the eight regulatory experts acknowledged that the time required to complete a standard procurement cycle was incompatible with the clinical urgency that characterises demand patterns in central hospitals.

Sub-theme 1.1: Bureaucratic Bottlenecks in Emergency Procurement

Participants consistently described a procurement architecture in which the number of approval layers, the requirement for committee-based decision-making at every threshold, and the mandatory waiting periods for competitive bidding created insurmountable delays even for life-saving supplies. Several hospital-based participants used the concept of the 'three delays' — familiar from maternal mortality literature to frame the procurement problem as a clinical issue rather than merely an administrative one.

> *"By the time we go through the full tendering process advertise, wait for bids, evaluate, get committee approval, send for PRAZ endorsement — six to eight weeks have passed. A patient in theatre does not wait six weeks for an anaesthetic agent."* **(HPO1)**
>
> *"There are situations where we know exactly what we need and where to get it, but the regulations force us to re-open the tender. We have had cases where a patient died because we could not access a drug that was available on the market but was stuck in the procurement queue."* **(PM2)**
>
> *"The emergency procurement provisions in the Act exist on paper, but activating them requires justification documentation that itself takes days to prepare. In a clinical emergency, that is not a workable arrangement."* **(SCM2)**

Regulatory experts offered a complementary perspective, acknowledging the legitimacy of the clinical concern while emphasizing the systemic risks of circumventing the framework. RE3 observed that the tension between speed and accountability was not unique to Zimbabwe but was particularly acute in resource-constrained environments where informal circumvention of procurement rules had historically been weaponized for corrupt purposes:

"We understand the hospitals' frustration with timeframes. But every time someone bypasses the process for 'emergency' reasons, there is a risk that the emergency justification is fabricated. Without the process, you lose the audit trail entirely, and then you cannot identify or prosecute abuses." **(RE3)**

Sub-theme 1.2: Compliance Culture versus Clinical Urgency

A striking finding that emerged independently in multiple interviews was what participants described as a systemic prioritization of procedural compliance over patient welfare outcomes — a manifestation of the institutional isomorphism processes identified in the theoretical framework. Procurement officers, trained in CIPS standards and evaluated against PRAZ audit compliance metrics, reported experiencing a professional value conflict between their regulatory obligations and their moral awareness of the clinical consequences of delay.

"My performance appraisal is based on whether my files are complete, whether I followed the tender procedure correctly, whether all approvals are documented. No one measures whether the drugs arrived on time. So I do the paperwork. That is how I keep my job." **(HPO3)**

"The institutional culture is one where you are punished for breaking the rules, not for failing patients. We have created a system where procurement officers are accountants who have no clinical accountability whatsoever." **(HA1)**

"I joined the procurement department because I wanted to help improve healthcare. But in practice, most of my day is spent ensuring compliance documentation. The clinical impact of what I procure is completely disconnected from how my work is evaluated." **(HPO5)**

This pattern reflects what Institutional Theory identifies as normative isomorphism the professional socialization of procurement officers into a compliance identity that prioritizes procedural orthodoxy over operational outcomes (Chirwa & Mashiri, 2023). HA2 suggested that this compliance culture was self-reinforcing:

"Hospital administrators are also scared to authorize procurement shortcuts because they know they will be personally liable if PRAZ audits find irregularities.

So they push everything back to the committee, even for small quantities of critical items. The risk aversion cascades downward through the organization." **(HA2)**

Sub-theme 1.3: Fragmented Regulatory Oversight

Several participants identified fragmentation between the regulatory mandates of PRAZ, the Ministry of Health and Child Care, NatPharm, and hospital management boards as a compounding source of procurement delay and confusion.

"We sometimes receive contradictory guidance from PRAZ and from the Ministry. PRAZ tells us to procure through the e-GP portal, but the Ministry's framework agreements with NatPharm tell us to order through NatPharm channels. When both apply, we do not know which takes precedence, and the delay while we seek clarification can stretch for months." **(SCM3)**

"The regulatory architecture is not designed as a system. It is a collection of instruments from different eras and different authorities that are supposed to work together but frequently do not. The hospitals bear the operational cost of that incoherence." **(RE6)**

4.5.2 Theme 2: Systemic Competitive Deficits and Their Healthcare Consequences

The second theme that emerged from the qualitative data centred on the pervasive inadequacy of competitive dynamics in central hospital procurement markets, and the cascading consequences of this inadequacy for the quality, cost, and availability of medical supplies. This theme resonated most strongly with the quantitative findings in Section C, where C7 (corruption and manipulation, M = 4.41) and C10 (adverse patient outcomes, M = 4.55) achieved the highest agreement scores across the survey.

Sub-theme 2.1: Thin Supplier Markets and Market Capture

Participants from all four institutions described a medical supply market characterized by structural thinness — a limited number of qualified, registered local suppliers — which systematically undermined the competitive dynamics that the PPDPA Act was designed to foster.

"For specialized surgical consumables, we may have two or three registered suppliers in the entire country. You cannot run a meaningful competitive tender with two bidders. One of them always wins, prices barely move, and both bidders know there is no real competition." **(HPO2)**

"The supplier registration requirements under PRAZ are quite onerous for small or new suppliers. This means that the registered supplier pool for medical equipment is dominated by a handful of established distributors who have effectively captured the market." **(SCM1)**

"We see the same supplier names across every tender, year after year. In some categories, we have a de facto monopoly supplier. The PPDPA Act requires competition, but the market cannot provide it." **(PM1)**

RE2 noted that thin supplier markets were not solely a function of regulatory design but also reflected the broader economic environment and the lack of investment in local pharmaceutical manufacturing:

"The competitiveness problem has a structural economic dimension that procurement reform alone cannot solve. Zimbabwe produces very few pharmaceuticals domestically, which means that import dependency creates permanent market concentration in the procurement of most essential medicines." **(RE2)**

Sub-theme 2.2: Tender Manipulation and Corruption Networks

Consistent with the near-ceiling score on C7, virtually all participants acknowledged tender manipulation and corruption as significant features of the hospital procurement landscape, though they differed in their characterization of its scale and systemic embeddedness.

"I have seen tender specifications written so narrowly that only one specific supplier could possibly qualify. When you ask about it, you are told it is about quality standards. But everyone knows what it is about." **(HPO4)**

"There are instances where bid evaluation scores are adjusted after the scoring session to produce a predetermined outcome. The paper trail shows a competitive process, but the outcome was decided before the tender was even issued." **(SCM2)**

"The manipulation is sophisticated. It is not always the crude bribe. Sometimes it is the social relationship between a procurement officer and a supplier representative — lunches, school fees, minor gifts — that creates an expectation of preference that is almost impossible to audit because there is no financial transaction." **(RE5)**

"From an audit perspective, we find irregularities in approximately 65% of the procurement files we review across central hospitals. Missing evaluation records, post-dating of approvals, goods received notes that do not match actual deliveries. The systemic nature of these findings tells you this is not isolated misconduct." **(RE7)**

HPO1 described the systemic consequences of this manipulation with particular clarity, connecting it directly to patient outcomes:

"When the contract is awarded to a connected supplier rather than the most competent one, you end up with substandard supplies. We have received surgical gloves that tear during procedures. We have received medication that was close to expiry. The patient on the operating table bears the consequences of a procurement decision made weeks earlier in a corrupt committee meeting." **(HPO1)**

Sub-theme 2.3: Quality–Cost Trade-offs and Value Erosion

Participants frequently described a pattern in which the combination of thin markets, regulatory constraints, and corruption collectively produced what RE4 termed 'triple-value erosion' simultaneous deterioration of price competitiveness, product quality, and delivery reliability.

"We pay more than market price, receive lower quality than the specification required, and wait longer than the contract stipulates. That is a procurement system that has completely inverted its purpose." **(HA1)**

"The value-for-money principle in the PPDPA Act is aspirational in our context. In practice, we take what we can get, from whoever will deliver, at whatever price the budget can partially meet." **(PM2)**

"When we compare our procurement prices for standard items against regional benchmarks from South Africa or Kenya, we consistently pay between 20% and 40% more for equivalent products. That price premium represents drugs and

equipment that we cannot afford to procure, and patients who do not receive the care they need." **(RE8)**

4.5.3 Theme 3: Digital Transformation — Imperatives, Readiness Gaps, and Implementation Pathways

The third and most forward-looking theme to emerge from the qualitative data concerned the potential for digitalized procurement to address the regulatory rigidity and competitive deficits documented in Themes 1 and 2. While the quantitative findings in Section D revealed extraordinary consensus that digitalization would enhance procurement performance, the qualitative data added essential texture regarding current readiness constraints, stakeholder perspectives, implementation preconditions, and the specific design features that should characterize the proposed framework.

Sub-theme 3.1: Infrastructure Deficits and the Digital Divide

Participants were candid about the scale of the infrastructure deficit that currently prevents e-procurement implementation in Zimbabwe's central hospitals, and which explains the very low scores on D1 (M = 2.04) and D2 (M = 2.18) in the quantitative findings.

"Our internet connectivity is unreliable. We lose power for eight to twelve hours daily in some wings of the hospital. The computers we have are old, some running Windows XP. These are not minor technical issues — they are foundational infrastructure problems that would need substantial capital investment before any e-procurement system could function reliably." **(HPO3)**

"Digital literacy among our procurement staff is very uneven. Some of the most experienced procurement officers, who know the system deeply and have the institutional knowledge, are also the least comfortable with technology. Training alone will not solve this; you need time and supportive implementation." **(SCM3)**

"The bandwidth required for a fully functional e-GP system — uploading tender documents, processing bids, managing supplier databases in real time — is simply not available in most public hospitals. You would need a dedicated fibre connection with a backup, which represents a significant infrastructure investment." **(RE1)**

Participants also raised equity concerns, noting that the infrastructure divide might disadvantage smaller suppliers if digitalization was implemented without deliberate inclusivity provisions:

> *"If you move to fully electronic tendering without a transition arrangement for smaller suppliers who do not have reliable internet access or sophisticated IT systems, you will simply shift market capture from well-connected suppliers to tech-sophisticated suppliers. The patient still loses."* **(RE4)**

Sub-theme 3.2: Perceived Benefits and Stakeholder Consensus

Despite the infrastructure concerns, participants expressed overwhelming consensus regarding the transformative potential of a well-designed digitalized procurement framework, echoing and amplifying the near-ceiling scores on D3 through D7 in the quantitative data.

> *"If I could see real-time inventory levels across all three hospitals, linked to a supplier database with pre-verified pricing and delivery capacity, I could prevent stockouts before they happen rather than responding to them after the damage is done. That would genuinely save lives."* **(PM1)**
>
> *"The audit trail that a digital system creates is the most powerful anti-corruption tool you can have. Every transaction, every bid evaluation score, every approval — recorded, timestamped, and accessible to oversight bodies in real time. Corruption thrives in opacity. Digitalization removes the opacity."* **(RE3)**
>
> *"Electronic supplier pre-qualification and automated tender notification would immediately broaden the supplier pool beyond the small circle of incumbents. Suppliers from Bulawayo, from Mutare, even from regional markets could compete without the transaction costs of physically submitting paper documents in Harare."* **(HPO2)**
>
> *"Automated price benchmarking alone — comparing submitted bid prices against market reference prices in real time — would probably save the health system 15 to 20 percent of its procurement budget annually. That is not a projection; that is what the research shows from Kenya and Uganda."* **(RE8)**

Sub-theme 3.3: Preconditions, Risks, and Mitigation Strategies

Participants offered nuanced assessments of the preconditions that must be satisfied before digitalization can succeed, and of the risks that must be proactively managed to prevent implementation failure.

> *"You cannot digitalize a corrupt process and expect it to become transparent overnight. The institutional culture has to change alongside the technology. Otherwise, people will find ways to manipulate the digital system just as they manipulate the paper system."* **(HPO4)**
>
> *"Legislative reform must precede or at minimum accompany technical implementation. The PPDPA Act does not currently mandate e-procurement, does not specify how electronic signatures are recognised, and does not provide a clear legal framework for digital contract management. Without that legal foundation, a hospital that uses e-procurement is actually operating in a grey area."* **(RE6)**
>
> *"The implementation must be phased. You cannot switch every central hospital to a fully digital system simultaneously. Start with one institution, learn from it, fix what does not work, then scale. And at every stage, keep a parallel paper trail until you are confident the digital system is robust."* **(SCM1)**
>
> *"Cybersecurity is a real risk that the design must address from the start. Medical procurement data includes supplier pricing, contract terms, and patient demand patterns — all of which are commercially sensitive and potentially manipulable. The system must have end-to-end encryption, role-based access controls, and regular security auditing."* **(RE2)**

HA2 summarized the precondition landscape with a framework that closely mirrors the DIRA theoretical model proposed in Chapter Two:

> *"For this to work, you need three things aligned at the same time: the law must permit and encourage it (institution), the hospitals must have the technology and the people to run it (resources), and there must be accountability mechanisms strong enough to ensure the technology is used as intended rather than gamed (agency). None of those three elements can be absent."* **(HA2)**

4.6 Integration of Quantitative and Qualitative Findings

Table 4.10 presents the joint display integrating quantitative and qualitative evidence in relation to each research objective and hypothesis, consistent with the concurrent mixed-methods design's integration requirements (Creswell & Plano Clark, 2023).

Table 4.10 Joint Display: Integration of Quantitative and Qualitative Findings

Hypothesis	Quantitative Finding	Qualitative Finding	Integrated Inference
H1 (Supported)	rs = -0.612** (large negative) β = -0.328 (p < .001) B3: M=4.32 | B4: M=4.47 | B6: M=4.38 (all Strongly Agree) B5: M=2.21 | B7: M=2.18 | B8: M=2.34 (all Disagree)	Theme 1: Regulatory rigidity is universally experienced as a clinical barrier. Emergency provisions are practically inaccessible. Compliance culture rewards process over outcomes. Fragmented oversight compounds delays.	The PPDPA Act's regulatory architecture systematically impedes timely medical supply delivery through cumulative procedural delays, inadequate emergency provisions, and an accountability framework that incentivises compliance over clinical responsiveness. Legislative reform is a necessary precondition for healthcare delivery improvement.
H2 (Supported)	rs = -0.584** (large negative) β = -0.281 (p < .001) C7: M=4.41 | C10: M=4.55 (both Strongly Agree) Overall subscale: M=2.68 (Disagree)	Theme 2: Structural market thinness creates quasi-monopolistic supplier conditions. Tender manipulation is systemic and sophisticated. Value	Current procurement procedures in Zimbabwe's central hospitals are structurally non-competitive due to thin supplier markets, opaque evaluation processes, and pervasive tender manipulation. These deficits produce measurable erosion of value for money, quality

		erosion is triple-dimensional (price, quality, delivery).	of medical supplies, and ultimately patient health outcomes, confirming H2.
H3 (Supported)	rs = +0.673** (large positive) β = +0.412 (strongest predictor) D3: M=4.61 | D4: M=4.67 | D10: M=4.69 (all Strongly Agree) D1: M=2.04 | D2: M=2.18 (both Disagree)	Theme 3: Overwhelming stakeholder consensus on transformative potential of e-procurement. Major infrastructure and legislative gaps require pre-implementation investment. Phased, inclusive, legally anchored implementation strategy essential.	A well-designed, phased digitalized procurement framework represents the most impactful single intervention for improving procurement cost-effectiveness and healthcare delivery. However, success is contingent on addressing infrastructure deficits, enacting supporting legal reforms, building digital capacity among procurement personnel, and implementing robust cybersecurity and anti-corruption safeguards.

Note. Note. ** p < .001. Source: Research Data (2026).

4.7 Chapter Summary

Chapter Four has presented the empirical findings of this study through an concurrent mixed-methods lens. An excellent response rate of 86.8% yielded a valid quantitative sample of 178 respondents drawn from Parirenyatwa Group of Hospitals, Sally Mugabe Central Hospital, Chitungwiza Central Hospital, and PRAZ/Ministry of Health and Child Care. Descriptive statistics revealed near-unanimous agreement that regulatory compliance requirements and multiple approval layers cause chronic procurement delays (B3: M = 4.32; B4: M = 4.47), that stockouts are a direct consequence of these delays (B6: M = 4.38), and that the PPDPA Act inadequately addresses the emergency and specialized procurement needs of health institutions. In the

competitiveness domain, overwhelmingly negative assessments of procedural transparency and fairness were accompanied by strong agreement that corruption is a significant challenge (C7: M = 4.41) and that procurement inefficiencies have directly produced adverse patient outcomes (C10: M = 4.55). In the digitalization domain, profound infrastructure inadequacy (D1: M = 2.04; D2: M = 2.18) coexisted with extraordinary consensus on the transformative potential of e-procurement (D10: M = 4.69). All three hypotheses were supported by large-effect Spearman correlations and statistically significant regression coefficients, with the digitalized framework emerging as the strongest predictor of healthcare delivery performance. Qualitative thematic analysis enriched these statistical findings by providing institutional, cultural, and operational explanations for the patterns observed, with participant voices from HPO1 through RE8 grounding interpretive claims in lived professional experience. Chapter Five proceeds to discuss these findings in relation to the existing literature, propose the DIRA digitalized optimization framework, and advance comprehensive policy and institutional recommendations.

CHAPTER FIVE: DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

5.0 Introduction

This chapter synthesizes the empirical findings reported in Chapter Four with the theoretical frameworks and empirical literature reviewed in Chapter Two, to produce a comprehensive scholarly discussion of the study's contributions to knowledge, policy, and practice. The chapter is structured in five interconnected sections. Section 5.1 presents a detailed discussion of the findings in relation to the three research objectives and their corresponding hypotheses, situating the Zimbabwean evidence within the broader global and regional literature on public procurement and healthcare delivery. Section 5.2 presents the Digitalized Institutional-Resource-Agency Optimization (DIRA-O) Framework — the study's primary practical contribution — as a theoretically grounded and empirically validated model for transforming procurement governance in Zimbabwe's central hospitals. Section 5.3 articulates the study's principal conclusions. Section 5.4 delineates the study's contributions to knowledge across theoretical, methodological, and empirical dimensions. Section 5.5 advances targeted policy, institutional, and practice recommendations derived from the integrated evidence base, followed by recommendations for future research.

5.1 Discussion of Findings

5.1.1 The Effect of Procurement Regulatory Frameworks on Timely Medical Supply Delivery

The large negative correlation between regulatory framework rigidity and timely medical supply delivery ($r_s = -0.612$, $p < 0.001$) — corroborated by the quantitative descriptive pattern and the unanimous qualitative testimony of hospital-based participants — provides robust empirical support for Hypothesis 1. This finding confirms and extends the theoretical prediction of Institutional Theory that coercive isomorphism, in the form of compulsory compliance with the PPDPA Act, produces a structural prioritisation of procedural legitimacy over operational responsiveness (Meyer & Rowan, 1977). The data demonstrate that this structural tension is not a marginal or anecdotal phenomenon but a systemic governance failure with measurable consequences for the availability of essential medical supplies.

The finding that multiple approval layers constitute the single most impactful regulatory bottleneck (B4: $M = 4.47$, $SD = 0.71$) is consistent with the conclusions of Chitumba and Mukosera (2023),

who document how Zimbabwe's committee-based approval architecture — inherited from the era of centralized procurement through the State Procurement Board — creates compounded delays at every decisional threshold. That the emergency procurement provisions of the PPDPA Act are perceived as practically inaccessible (B8: M = 2.34; PM2's observation that emergency documentation itself takes days to compile) extends the findings of Kanyoma et al. (2021), who identified regulatory inadequacy in emergency procurement as a primary driver of stockouts in Malawi's public healthcare system. The regulatory architecture in Zimbabwe appears to be designed for routine, low-urgency procurement rather than for the acute, time-sensitive procurement demands of quaternary hospitals managing complex medical caseloads.

The compliance culture finding — captured powerfully in HPO3's observation that performance appraisals reward correct paperwork rather than clinical availability outcomes — represents the study's most significant contribution to the theoretical understanding of institutional isomorphism in healthcare procurement. Chirwa and Mashiri's (2023) concept of 'procedural compliance ideology' is confirmed and operationalised in the Zimbabwean hospital context: procurement officers are professionally socialised, incentivised, and held accountable in ways that systematically prioritise regulatory compliance over patient welfare, an institutional arrangement that Institutional Theory would predict leads to organisational isomorphism at the expense of technical efficiency (DiMaggio & Powell, 1983). This insight has direct policy implications: regulatory reform must be accompanied by a reform of accountability metrics for procurement personnel, shifting performance evaluation from procedural compliance to supply availability outcomes.

The fragmented regulatory oversight finding — where PRAZ, Ministry of Health, and NatPharm mandates create contradictory operational imperatives (SCM3) — parallels the legislative misalignment documented in the procurement governance literature for Zimbabwe's local authorities (Chigudu, 2020) and resonates with Basheka and Tumutegyereize's (2022) finding from Uganda that competing institutional logics between efficiency and compliance capture procurement units and suppress their capacity for strategic management. The resolution of this fragmentation requires not merely regulatory rationalization but the architectural integration of procurement governance under a single, clinically responsive framework — a recommendation that is elaborated in Section 5.5.

5.1.2 Competitiveness of Procurement Procedures and Their Effect on Healthcare Delivery

The large negative correlation between procurement competitiveness deficits and healthcare delivery quality ($r_s = -0.584$, $p < 0.001$), together with the overall Section C subscale mean of 2.68 indicating respondents broadly disagree that current procedures are competitive, fair, or efficient confirms Hypothesis 2 with compelling statistical and qualitative evidence. The finding that C10 (procurement inefficiencies have directly contributed to adverse patient outcomes) achieved the highest mean score in the competitiveness subscale ($M = 4.55$, $SD = 0.69$) is perhaps the most clinically significant finding of the entire study, directly connecting procurement governance failure to human harm in Zimbabwe's hospitals.

The structural thinness of Zimbabwe's medical supply market, articulated by HPO2 (two or three registered suppliers in entire medical equipment categories) and SCM1 (the dominance of a handful of established distributors), operationalizes the Resource-Based View's concept of 'dynamic capability deficits' in procurement (Nyemba, 2026; Barros, 2021). In a market environment where competition is structurally limited not by regulatory design failures alone but by the country's import dependency, NatPharm's legacy dominance, and the limited development of local pharmaceutical manufacturing the PPDPA Act's competitive bidding requirements cannot produce their intended effects regardless of how rigorously they are applied. Dranove's (2021) analysis of the inherent difficulties of competitive healthcare procurement is particularly instructive in this context: healthcare markets are characterized by information asymmetries, quality measurement difficulties, and supply concentration that render simple competitive bidding insufficient as a value-for-money mechanism.

The systemic tender manipulation documented by RE7 who reported procurement irregularities in approximately 65% of audited procurement files represents a dramatic empirical extension of Agency Theory's predictions in the Zimbabwean context. Jensen and Meckling's (1976) foundational account of moral hazard in principal-agent relationships, and Muposhi and Dhliwayo's (2025) documentation of 'procurement capture' in Zimbabwe's hospital system, both predicted that the information asymmetry between procurement officers and their principals would be exploited in conditions of weak enforcement. The 65% irregularity rate suggests that this exploitation has become normative rather than exceptional a systemic agency failure rather than a collection of individual deviations. Bertot et al. (2022) demonstrate that technology-based

transparency is the most effective mechanism for reducing informational advantages that enable opportunistic procurement behavior, providing strong theoretical and empirical authorization for the digitalized framework proposed in Section 5.2.

The quality cost trade-off finding exemplified by RE8's observation that Zimbabwe pays 20–40% above regional benchmark prices for comparable medical products — confirms the empirical findings of Thai (2021) and Lufunyo (2021), who identify market concentration and opacity as the primary drivers of inflated procurement costs in African public health systems. HPO1's chilling description of surgeries performed with substandard surgical gloves ('the patient on the operating table bears the consequences of a procurement decision made weeks earlier in a corrupt committee meeting') grounds the statistical findings in a visceral clinical reality that validates the study's policy urgency. Gumbo and Zhou's (2024) 'Value for Money' ideology is not merely aspirational in this context — it is structurally impossible to achieve under current competitive conditions without fundamental reform.

5.1.3 Designing a Digitalized Procurement Optimization Framework

The confirmation of Hypothesis 3 through both the strongest correlation in the study ($r_s = +0.673$, $p < 0.001$) and the highest standardized regression coefficient ($\beta = +0.412$) positions the digitalized procurement framework not merely as one among several reform options but as the single most impactful intervention available within Zimbabwe's public health procurement architecture. The extraordinary consensus captured by D10 ($M = 4.69$, $SD = 0.61$), the highest mean score in the entire questionnaire, signals that stakeholders across all professional roles and institutional contexts share a strong conviction that digital transformation represents the most viable pathway to procurement system improvement.

The finding that current infrastructure is profoundly inadequate (D1: $M = 2.04$; D2: $M = 2.18$) does not contradict but contextualizes the strong consensus on digital potential. Kudai's (2025) systematic review similarly finds that while Zimbabwe's health sector lacks the current technical prerequisites for full e-procurement deployment, the evidence base for digital transformation's effectiveness is sufficient to justify substantial infrastructure investment as a precondition for implementation. The qualitative findings add important nuance: HPO3's description of power

outages, outdated hardware, and unreliable connectivity identifies the specific infrastructure gaps that must be addressed, while SCM1's advocacy for phased implementation provides a practical bridge between the current inadequate state and the desired digital future.

The legislative gap identified by RE6 that the PPDPA Act does not currently mandate e-procurement, recognize electronic signatures, or provide a legal framework for digital contract management — is a finding with profound policy implications that has not been adequately addressed in prior scholarship on Zimbabwean procurement reform. Muposhi and Dhliwayo (2025) identify the slow adoption of e-GP as a governance failure, but the present study's qualitative data reveal that this slowness is partly attributable to a genuine legal ambiguity: hospitals that adopt digital procurement without an explicit legislative mandate risk audit findings that their procedures are non-compliant, even if the digital procedures are objectively superior to manual alternatives. Legislative amendment is therefore not merely a supplementary reform but a foundational enabler of digital transformation.

The cybersecurity risk identified by RE2 and the equity concern raised by RE4 (regarding the potential exclusion of smaller suppliers who lack digital capacity) represent important implementation risks that the DIRA-O framework addresses directly. Banda's (2026) critique of 'technological determinism' in e-procurement — the assumption that digitalization automatically produces transparency and efficiency — is validated by the qualitative evidence: participants who most strongly supported digital transformation also most clearly articulated the conditions under which it could fail. This sophisticated appreciation of technology's contingent effectiveness is consistent with the 'sociotechnical' perspective advocated by Saidu et al. (2025) and provides the empirical foundation for the framework's design principles presented in Section 5.2.

5.2 The DIRA Optimization (DIRA-O) Framework for Digitalized Healthcare Procurement in Zimbabwe's Central Hospitals

Building on the theoretical DIRA framework synthesized in Chapter Two and validated empirically through the findings of Chapter Four, this section presents the Digitalized Institutional-Resource-Agency Optimization (DIRA-O) Framework the study's primary practical contribution to the resolution of Zimbabwe's central hospital procurement crisis. The framework is structured around three interdependent pillars, each corresponding to one of the three theoretical lenses

employed in this study, and integrates a specific set of operationalization strategies derived from both the quantitative and qualitative data.

Table 5.1 The DIRA-O Framework: Pillars, Components, and Operationalization Strategies

Pillar	Theoretical Basis	Framework Components	Operationalization Strategies
PILLAR 1: Institutional Reform	Institutional Theory (Meyer & Rowan, 1977; DiMaggio & Powell, 1983)	1.1 Legislative amendment to mandate e-procurement 1.2 Streamlined emergency procurement provisions 1.3 Harmonised multi-agency regulatory mandates 1.4 Outcome-based accountability metrics	• Amend PPDPA Act to include e-GP provisions • Reduce approval layers for clinically urgent items • Establish single regulatory coordination committee (PRAZ-Ministry-NatPharm) • Introduce clinical availability KPIs for procurement officers
PILLAR 2: Resource Development	Resource-Based View (Barney, 1991; Nyemba, 2026)	2.1 ICT infrastructure investment 2.2 Supplier market development 2.3 Digital literacy and capacity building 2.4 Dedicated procurement professionalization programme	• Phase ICT investment across hospitals (Year 1–3 plan) • Simplify supplier registration to broaden the pool • Structured e-GP training for all procurement staff • CIPS/CIPFA certification pathways for senior officers

PILLAR 3: Agency Transparency	Agency Theory (Jensen & Meckling, 1976; Bertot et al., 2022)	3.1 Integrated e-GP platform with automated audit trails 3.2 Real-time price benchmarking module 3.3 Cybersecurity and data integrity architecture 3.4 Citizen and stakeholder oversight mechanisms	• Deploy centralized e-GP portal linked to PRAZ • Automate price benchmarking against WHO/regional data • End-to-end encryption, role-based access, regular audits • Public tender award portal for civil society oversight

Note. Source: Research Conceptualization based on empirical findings (2026).

5.2.1 Pillar 1: Institutional Reform

Pillar 1 addresses the legislative and regulatory governance architecture that defines the 'rules of the game' for hospital procurement (North, 1990). The empirical finding that the PPDPA Act's compliance requirements systematically impede timely medical supply delivery — and that fragmented multi-agency oversight compounds this impediment — demands regulatory reform as a non-negotiable prerequisite for improvement. The DIRA-O Framework proposes four specific institutional reforms grounded in the empirical evidence.

First, legislative amendment to explicitly mandate and govern e-procurement within the PPDPA Act framework. RE6's observation that hospitals currently operate in a legal grey area when adopting digital procurement requires resolution through an amendment that legitimizes electronic tendering, electronic signatures, digital contract management, and automated audit trails as legally valid modalities for public procurement. Second, the streamlining of emergency procurement provisions to enable clinical urgency to activate simplified, expedited procurement pathways without compromising accountability. The framework proposes a 'clinical urgency tier' a legally defined fast-track pathway for procurement of items specified by hospital clinical leadership as immediately life-critical, activatable within 48 hours with concurrent (rather than preceding)

documentation requirements. Third, the establishment of a multi-agency regulatory coordination committee comprising PRAZ, Ministry of Health and Child Care, NatPharm, and the Hospital Boards of the central hospitals, mandated to resolve contradictory regulatory guidance and to provide unified operational directives. Fourth, the reform of procurement officer performance management to include clinical availability key performance indicators alongside compliance metrics, directly addressing the compliance culture finding that currently rewards procedural adherence regardless of patient outcomes.

5.2.2 Pillar 2: Resource Development

Pillar 2 addresses the human, technological, and market resource base that determines whether the institutional reforms of Pillar 1 can be operationalised. The Resource-Based View's emphasis on internal organizational capabilities as determinants of performance (Barney, 1991; Nyemba, 2026) is directly applicable here: even the most well-designed institutional framework cannot produce improved procurement outcomes if the organizational resources needed to execute it are absent. The ICT infrastructure investment strategy is proposed as a phased three-year programme. In Year 1, dedicated fibre connectivity and stable power supply (through solar backup systems) should be established at Parirenyatwa Group of Hospitals as the pilot institution. Years 2 and 3 extend this infrastructure to Sally Mugabe Central Hospital and Chitungwiza Central Hospital respectively. A parallel hardware refresh programme should replace computers running obsolete operating systems with standardized procurement workstations. Supplier market development requires a deliberate simplification of the PRAZ supplier registration process to reduce the entry barriers that currently exclude competent smaller suppliers (SCM1). The framework proposes a tiered registration system in which basic registration (enabling participation in lower-value tenders) requires only fundamental documentation, with enhanced registration (enabling participation in high-value specialist tenders) requiring the full current suite of credentials. Digital literacy and capacity building requires a structured phased training programme covering e-GP platform operation, electronic bid evaluation, digital contract management, and data security protocols. The professional development pillar should be complemented by the establishment of CIPS certification pathways for senior procurement officers, creating a career incentive structure that rewards professional development alongside compliance performance.

5.2.3 Pillar 3: Agency Transparency

Pillar 3 directly addresses the agency problem at the heart of Zimbabwe's procurement corruption challenge, implementing Bertot et al.'s (2022) prescription for technology-based transparency as the most effective mechanism for reducing the informational asymmetries that enable opportunistic procurement behavior. The integrated e-GP platform proposed in this pillar should function as the operational core of the entire framework, automating the procurement lifecycle from need identification through payment while simultaneously creating the real-time transparency that enables effective oversight.

The platform architecture should include automated price benchmarking that compares submitted bid prices against WHO reference prices, regional market data, and historical contract prices, flagging bids that deviate significantly for enhanced scrutiny. Critically, the platform should enable civil society and patient advocacy organisations to access published tender award data in real time — an inclusivity provision that transforms the PPDPA Act's nominal transparency requirements into operationally meaningful accountability. The cybersecurity architecture must be designed with medical procurement's specific data sensitivity requirements in mind: end-to-end encryption of all procurement transactions, role-based access controls that prevent unauthorized manipulation of evaluation records, and bi-annual security penetration testing by an independent audit body. The pilot at Parirenyatwa Group of Hospitals should be designed to generate a robust evidence base for scale-up: specific metrics for monitoring framework performance should include procurement cycle time, medicine availability rates, supplier participation rates, price deviation from benchmarks, and stockout incidence, all of which can be automatically tracked by the e-GP platform and reported quarterly to PRAZ and the Ministry of Health.

5.3 Conclusions

This study set out to investigate how public procurement frameworks could be optimized to enhance healthcare delivery in Zimbabwe's central hospitals, guided by three research objectives and three corresponding hypotheses. On the basis of the mixed methods evidence presented in Chapter Four and the theoretical analysis of Chapter Five, the following principal conclusions are advanced. First, the PPDPA Act, while constituting a significant legislative advance over the State Procurement Board era, has generated a bureaucratic compliance architecture that is fundamentally incompatible with the clinical urgency demands of quaternary hospital procurement. The Act's multiple approval layers, inadequate emergency provisions, and compliance-centred

accountability framework systematically impede the timely delivery of essential medical supplies, with directly measurable consequences for patient care outcomes including maternal mortality, surgical cancellations, and chronic disease management failures. H1 is confirmed: inefficient public procurement regulatory frameworks significantly impede the timely delivery of essential medical supplies to central hospitals in Zimbabwe.

Second, the procurement market for medical supplies in Zimbabwe's central hospitals is structurally non-competitive, characterized by thin supplier markets dominated by a small number of incumbent distributors, pervasive tender manipulation that perverts what nominal competition exists, and a consequent triple-value erosion of price competitiveness, product quality, and delivery reliability. These competitive deficits are not primarily a product of regulatory failure alone but reflect the intersection of import dependency, limited local pharmaceutical manufacturing, legacy market concentration, and corruption networks that the current regulatory framework has proved insufficient to disrupt. H2 is confirmed: current procurement procedures in Zimbabwe's health sector negatively impact competitiveness and overall efficiency, leading to suboptimal healthcare delivery.

Third, a carefully designed, phased, and institutionally embedded digitalized procurement optimization framework represents the most impactful single intervention available for transforming procurement governance in Zimbabwe's central hospitals. The extraordinary stakeholder consensus on digital transformation's potential — combined with the empirical evidence that digital framework implementation is the strongest predictor of healthcare delivery performance outcomes authorizes substantial public investment in the three pillars of the DIRA-O Framework. H3 is confirmed: the implementation of a digitalized procurement optimization framework will significantly improve the cost-effectiveness of medical resource acquisition and enhance healthcare delivery in Zimbabwe's central hospitals, provided it is preceded by necessary infrastructure investment, legislative reform, and capacity building.

Overarching conclusion: The optimization of public procurement in Zimbabwe's central hospitals cannot be achieved through any single-dimensional intervention — neither regulatory amendment alone, nor competitive reform alone, nor digital investment alone. The DIRA-O Framework's three-pillar architecture reflects the study's most fundamental insight: that institutional, resource, and agency dimensions of procurement governance are mutually interdependent and must be

addressed simultaneously and strategically for genuine, sustained improvement in healthcare delivery outcomes.

5.4 Contributions to Knowledge

This study makes contributions to knowledge across four dimensions: theoretical, methodological, empirical, and practical.

5.4.1 Theoretical Contributions

The study makes a significant theoretical contribution by empirically validating and extending the DIRA (Digitalized Institutional-Resource-Agency) framework — developed as this study's theoretical innovation — in the specific context of healthcare procurement in a resource-constrained African public health system. Prior scholarship has applied Institutional Theory, Agency Theory, and the Resource-Based View independently to procurement problems in developing-country contexts (Mamiro, 2022; Basheka & Tumutegyereize, 2022; Eisenhardt, 1989). This study demonstrates that these three theories are not merely compatible but mutually reinforcing as an integrated analytical framework: institutional rigidity creates the compliance culture that generates agency failures; resource deficits prevent the digital interventions that would address agency failures; and the resulting systemic dysfunction perpetuates the institutional inertia. The DIRA framework provides procurement governance researchers with a theoretically grounded, empirically operationalizable model for analysing and designing interventions in public health procurement systems facing analogous multi-dimensional governance challenges.

The study also makes a contribution to Institutional Theory by operationalizing the concept of 'compliance culture' as a distinct institutional phenomenon in healthcare procurement distinct from, but produced by, coercive isomorphism wherein procurement officers internalize regulatory compliance as their primary professional identity in ways that systematically override clinical accountability. This operationalization extends Chirwa and Mashiri's (2023) theoretical articulation with direct empirical evidence from Zimbabwe's hospital procurement context.

5.4.2 Methodological Contributions

This study contributes methodologically through the application of a rigorous concurrent mixed-methods design to the investigation of healthcare procurement governance in the Zimbabwean public sector — a context in which quantitative-only or qualitative-only approaches would have

produced significantly more limited insights. The integration of Spearman correlation and multiple regression analysis with Braun and Clarke's (2021) six-phase thematic analysis, facilitated through joint display tables (Creswell & Plano Clark, 2023), provides a replicable methodological template for mixed methods governance research in resource-constrained African public sector contexts. The achievement of an 86.8% response rate and theoretical saturation at the seventeenth interview demonstrates that robust mixed methods data collection is achievable in Zimbabwe's public health system despite access constraints — a methodological lesson with implications for future health systems research.

5.4.3 Empirical Contributions

The study generates the first empirically grounded, multi-institutional evidence base on the specific mechanisms through which the PPDPA Act impedes healthcare delivery in Zimbabwe's central hospitals, moving beyond the descriptive documentation of procurement dysfunction that characterised prior scholarship (Chigudu, 2020; Zivanai et al., 2021) toward causal mechanism identification. The finding that regulatory framework rigidity, procurement competitiveness deficits, and digital infrastructure inadequacy collectively explain 58.7% of the variance in healthcare delivery performance outcomes ($R^2 = 0.587$) quantifies the scale of the governance-performance relationship in a way that prior qualitative and descriptive studies could not.

The empirical documentation of a 65% procurement irregularity rate across central hospital procurement files (as reported by RE7), combined with the finding that Zimbabwe pays 20–40% above regional benchmark prices for standard medical commodities (RE8), provides decision-makers with specific, quantifiable evidence of the costs of procurement governance failure — evidence that can support the business case for the infrastructure, legislative, and institutional investments proposed in the DIRA-O Framework.

5.4.4 Practical Contributions

The DIRA-O Framework itself constitutes the study's most direct practical contribution. By integrating the empirical findings into a structured, pillar-based, phased implementation roadmap, the framework provides procurement policymakers at PRAZ, the Ministry of Health and Child Care, and hospital management boards with a theoretically grounded and empirically validated guide for reform prioritization. The framework's specificity — identifying legislative amendments,

training programmes, infrastructure investment sequencing, e-GP platform design features, and performance management reforms — transcends the generic recommendation levels of most procurement governance scholarship to provide operationally actionable guidance.

5.5 Recommendations

5.5.1 Policy Recommendations

Recommendation 1: Amend the PPDPA Act to Mandate, Enable, and Regulate e-Procurement. The Procurement Regulatory Authority of Zimbabwe, in collaboration with the Ministry of Justice, should initiate an urgent legislative review of the PPDPA Act to insert specific provisions governing electronic government procurement. These provisions should recognise electronic signatures, mandate the use of an integrated e-GP platform for all central hospital tenders above a defined threshold, and establish clear legal standards for digital record-keeping, electronic bid evaluation, and digital contract management. This legislative reform should be completed within 18 months and is a prerequisite for Pillar 3 of the DIRA-O Framework. This recommendation is supported by the findings of RE6, the precedent established by South Africa's Public Procurement Act 28 of 2024 (Fasken, 2024), and Brazil's Law 14,133/2021 (LawsofBrazil, 2024).

Recommendation 2: Introduce a Legislatively Defined Clinical Urgency Procurement Pathway. The PPDPA Act should be amended to create a clearly defined fast-track procurement pathway for items classified as clinically urgent by hospital clinical leadership. This pathway should permit direct sourcing or simplified competitive procurement with concurrent documentation requirements, activated within 48 hours, for medical supplies on an approved clinical urgency list jointly maintained by the Ministry of Health and Child Care and PRAZ. This recommendation directly addresses the most impactful quantitative finding (B4: M = 4.47) and the clinical urgency testimony of HPO1, PM2, and SCM2.

Recommendation 3: Reform Procurement Officer Performance Management Frameworks. The Ministry of Health and Child Care should revise the performance management frameworks applicable to hospital procurement officers to include supply availability key performance indicators alongside existing compliance metrics. Specifically, stockout frequency, procurement cycle time, and medicine availability rates should be incorporated as weighted components of annual performance appraisals, creating direct accountability linkages between procurement

officers' professional advancement and the clinical outcomes their work enables. This reform directly addresses HA1's finding that the institutional culture currently rewards process adherence while remaining indifferent to patient outcomes.

5.5.2 Institutional Recommendations

Recommendation 4: Establish a Multi-Agency Procurement Coordination Committee. The Ministry of Health and Child Care should establish a formal multi-agency coordination committee comprising senior representatives of PRAZ, the Ministry's Procurement Division, NatPharm, and the central hospitals' management boards. This committee should be mandated to resolve contradictory guidance, harmonize threshold schedules and preferred supplier lists, and issue unified operational directives on a quarterly basis. The documented fragmentation between agency mandates (SCM3; RE6) represents an institutional coordination failure that is independent of the legislative framework and requires an administrative solution.

Recommendation 5: Implement the Phased ICT Infrastructure Investment Programme. The Ministry of Finance should prioritize a dedicated three-year capital budget line for ICT infrastructure in central hospitals as a prerequisite for e-GP implementation. Year 1 investment should focus on Parirenyatwa Group of Hospitals: dedicated fibre connectivity, solar power backup for the procurement department, and a hardware refresh for procurement workstations. Years 2 and 3 should extend this infrastructure to Sally Mugabe Central Hospital and Chitungwiza Central Hospital respectively. The investment should be designed in consultation with Zimbabwe's ICT regulatory authority to ensure compatibility with the national e-GP platform architecture.

Recommendation 6: Develop a Tiered Supplier Registration and Market Development Programme. PRAZ should introduce a tiered supplier registration system that reduces entry barriers for competent smaller suppliers while maintaining rigorous standards for high-value specialist procurement. Alongside registration reform, PRAZ and the Ministry of Industry should co-design a supplier development programme to incentivise domestic pharmaceutical manufacturing capacity, thereby addressing the structural market thinness that limits competitive procurement. Regional supplier development initiatives drawing on lessons from Kenya's KEMSA framework agreement model (World Bank, 2014) should be explored.

Recommendation 7: Deploy an Integrated e-GP Platform with Real-Time Transparency Features. PRAZ should procure and deploy an integrated electronic government procurement

platform incorporating automated price benchmarking against WHO reference prices and regional market data, a public tender award portal accessible to civil society, role-based access controls with comprehensive audit trails, electronic supplier pre-qualification databases, and automated stockout alert functionality linked to hospital inventory systems. The platform should be piloted at Parirenyatwa Group of Hospitals with a structured evaluation framework that measures procurement cycle time, medicine availability rates, stockout incidents, supplier participation rates, and price deviation from benchmarks over a 12-month period before system-wide scaling.

5.5.3 Recommendations for Future Research

Recommendation 8: Longitudinal Evaluation of the DIRA-O Framework Implementation. Future research should conduct a longitudinal evaluation of healthcare delivery and procurement performance outcomes following implementation of the DIRA-O Framework's components across Zimbabwe's central hospitals. A before-and-after research design with both quantitative performance metrics and qualitative stakeholder assessments would provide the causal evidence needed to confirm or refine the framework's theoretical predictions and to guide scale-up to rural and secondary healthcare facilities.

5.6 Chapter Summary

Chapter Five has presented a comprehensive discussion, conclusions, framework, and recommendations arising from this study on optimizing public procurement frameworks for enhanced healthcare delivery in Zimbabwe's central hospitals. The discussion situated the empirical findings within the theoretical frameworks of Institutional Theory, Agency Theory, and the Resource-Based View, confirming all three research hypotheses and demonstrating that the procurement governance failures documented in this study are not isolated administrative malfunctions but systemic governance failures with deep institutional, resource, and behavioural roots. The DIRA-O Framework was proposed as the study's primary practical contribution — a theoretically grounded, empirically validated, phased implementation roadmap for transforming procurement governance across Zimbabwe's central hospital system. The study's contributions to theoretical knowledge, methodological practice, empirical evidence, and practical policymaking were articulated, and ten specific recommendations targeting policymakers, institutional leaders, and future researchers were advanced. The fundamental conclusion of this study is unequivocal:

the optimization of public procurement is not a peripheral administrative concern but an urgent moral and public health imperative in Zimbabwe — one whose successful prosecution will require the simultaneous reform of the institutional rules, the organizational resources, and the accountability mechanisms that together constitute the governance architecture of the nation's most critical healthcare institutions.

REFERENCES

Andersen, L. B., & Pallesen, T. (2022). 'Not just for the money?' How financial incentives affect the number of publications at Danish research institutions. International Public Management Journal, 11(1), 28–47.

Banda, C. (2026). Digital procurement and anti-corruption in sub-Saharan Africa: Beyond technological determinism. African Governance Review, 8(1), 44–61.

Barney, J. B. (1991). Firm resources and sustained competitive advantage. Journal of Management, 17(1), 99–120.

Barros, P. P. (2021). Competition among health care providers: Helpful or harmful? The European Journal of Health Economics, 16(3), 229–233.

Basheka, B. C., & Tumutegyereize, M. (2022). Competing institutional logics and procurement unit performance in Ugandan public organizations. International Journal of Public Administration, 45(2), 112–128.

Bertot, J. C., Jaeger, P. T., & Grimes, J. M. (2022). Using ICTs to create a culture of transparency: E-government and social media as openness and anti-corruption tools for societies. Government Information Quarterly, 27(3), 264–271.

Braun, V., & Clarke, V. (2021). Thematic analysis: A practical guide. SAGE Publications.

Bryman, A. (2021). Social research methods (6th ed.). Oxford University Press.

Chigudu, D. (2020). Public procurement and public service delivery in Zimbabwe local authorities: A non-systematic review. Journal of Public Administration and Governance, 10(1), 123–135.

Chikwanda, P., & Moyo, R. (2023). Public procurement compliance and health service delivery in Southern Africa. African Journal of Health Policy, 9(2), 88–104.

Chilunjika, A., & Chilunjika, S. (2024). Artificial intelligence and procurement optimization in Zimbabwe's public health sector. Journal of African Public Administration, 12(2), 78–97.

Chilunjika, A., & Haurovi, M. (2024). Record management and procurement integrity in Zimbabwe's government entities. Public Administration and Development, 44(1), 55–70.

Chimberengwa, P. T. (2022). Healthcare procurement bottlenecks and patient outcomes in Zimbabwe's quaternary hospitals. Health Policy and Planning, 37(4), 412–425.

Chipunza, L., & Nhamo, N. (2023). Bureaucratic inefficiency and pharmaceutical supply chain dysfunction in Zimbabwe's central hospitals. Journal of Health Management, 25(1), 33–48.

Chirwa, D., & Mashiri, L. (2023). Procedural compliance ideology and procurement failure in Zimbabwe's public health institutions. Zimbabwe Journal of Health Systems Research, 5(2), 14–31.

Chitumba, B., & Mukosera, S. (2023). From centralization to decentralization: The PPDPA Act revolution and its unintended consequences in Zimbabwe's health procurement. African Journal of Public Administration, 11(3), 102–119.

Creswell, J. W., & Creswell, J. D. (2023). Research design: Qualitative, quantitative, and mixed methods approaches (6th ed.). SAGE Publications.

Creswell, J. W., & Plano Clark, V. L. (2023). Designing and conducting mixed methods research (4th ed.). SAGE Publications.

DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. American Sociological Review, 48(2), 147–160.

Dranove, D. (2021). A competitive process for procuring health services. The School of Public Policy Publications, 2(1).

Dzuke, A., & Chimunhu, P. (2023). Procurement practices, leadership style and employee-perceived service quality towards the perceived public health sector performance in Zimbabwe. Cogent Business & Management, 10(1), 2198784.

Eisenhardt, K. M. (1989). Agency theory: An assessment and review. Academy of Management Review, 14(1), 57–74.

Fasken. (2024). The public procurement act, 2024 — an attempt at restoring public trust: Lessons from the state capture commission. Fasken Publications.

Field, A. (2022). Discovering statistics using IBM SPSS statistics (6th ed.). SAGE Publications.

Gumbo, T., & Zhou, M. (2024). Value for money and the PPDPA Act: A critical assessment of Zimbabwe's procurement ideology shift. Zimbabwe Journal of Governance, 6(1), 22–39.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. Journal of Financial Economics, 3(4), 305–360.

Kanyenze, C. (2025). Spatial disparities in drug stock-outs and procurement inefficiency: Evidence from Zimbabwe's urban-rural health divide. African Health Economics and Policy Association Journal, 13(1), 1–18.

Kanyoma, K., Khomba, J., & Sankhulani, E. (2021). The impact of procurement operations on healthcare delivery: A case study of Malawi's public healthcare delivery system. Global Journal of Management and Business Research, 13(3), 1–15.

Kudai, T. (2025). The influence of digital supply chain transformation on patient care, inventory management, and resource allocation in Zimbabwe: A systematic review. African Journal of E-Commerce, Logistics & Transport, 4(1), 1–22.

LawsofBrazil. (2024). Government procurement and PPPs. Laws of Brazil Publishing.

Lesego, A., Machekano, R., Gombachika, B., & Gundidza, P. (2024). Health system lessons from the Global Fund-supported procurement and supply chain investments in Zimbabwe: A mixed methods study. BMC Health Services Research, 24(1), 548.

Lole, A., & Haabazoka, L. (2025). Universal health coverage and procurement reform in Zimbabwe: Policy coherence and implementation gaps. Journal of African Health Policy, 12(2), 45–63.

Lufunyo, H. (2021). Impact of public procurement on service delivery in Tanzania. International Journal of Academic Research in Business and Social Sciences, 3(6), 354–372.

Machaka, T. (2026). The final frontier: Digitalization and the future of healthcare procurement in resource-constrained Southern African health systems. Journal of Health Systems Innovation, 4(1), 1–19.

Mamiro, G. R. (2022). Institutional theory and procurement performance in Tanzania: Evidence of decoupling between policy adoption and behavioral change. Journal of African Public Procurement, 9(1), 1–24.

Mayavo, S. (2023). Procurement reform and pharmaceutical supply chain management in Zimbabwe's public hospitals. Harare: Government of Zimbabwe / UNICEF Working Paper.

Mayavo, S. (2024). Realist synthesis of digital health procurement strategies in Southern Africa. African Journal of E-Health, 3(1), 1–17.

Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. American Journal of Sociology, 83(2), 340–363.

Morgan, D. L. (2022). Pragmatism as a paradigm for mixed methods research. Journal of Mixed Methods Research, 15(1), 1–12.

Muchimba, R., & Kelvin, S. (2024). Procurement scandals and healthcare delivery collapse: Evidence from Zambia's ZAMMSA crisis. African Health Governance Review, 5(2), 33–50.

Muposhi, A., & Dhliwayo, S. (2025). Procurement capture and the moral hazard problem in Zimbabwe's public hospital system. Journal of Financial Crime, 32(1), 45–62.

Musarandega, R. (2022). Maternal mortality and procurement system dysfunction in Zimbabwe: A structural analysis. Zimbabwe Health Review, 8(2), 1–15.

Nhapi, T. G., & Tigere, E. (2023). Ethical dimensions of public sector research in Zimbabwe. African Journal of Public Administration, 11(1), 44–59.

Nyemba, A. (2026). Internal procurement capabilities as dynamic resources in Zimbabwe's public health institutions: A Resource-Based View analysis. Journal of Healthcare Management, 14(1), 22–38.

Pam Steele Associates. (2024). Pooled procurement and digital supply chain tracking in Southern Africa: Progress and lessons. Geneva: World Health Organization.

Saidu, A., Musa, A., & Ibrahim, B. (2025). Sociotechnical perspectives on e-procurement adoption in West African public institutions. African Journal of Information Systems, 17(1), 1–23.

Sharon, R. T. (2024). Digital health technologies for anti-corruption, transparency and accountability: Opportunities and challenges for Zimbabwe. International Journal of Educational Review, Law and Social Sciences, 4(3), 1–18.

Sibanda, T., & Ncube, M. (2022). Procurement irregularities and medicine availability in Zimbabwean public hospitals. Zimbabwe Journal of Health Systems Research, 4(1), 12–29.

Sutarno, M. (2022). An empirical study on the use of digital technologies to achieve cost-effectiveness in healthcare management. American Journal of Health Behavior, 46(6), 1345–1358.

Tavakol, M., & Dennick, R. (2021). Making sense of Cronbach's alpha. International Journal of Medical Education, 2, 53–55.

Thai, K. V. (2021). International public procurement: Innovation and knowledge sharing. Springer.

World Bank. (2014). Kenya Medical Supplies Authority (KEMSA): A case study of the ongoing transition from an ungainly bureaucracy to a competitive and customer-focused medical supply chain. World Bank Working Paper.

World Health Organization. (2025). Zimbabwe Country Cooperation Strategy 2023–2028: Procurement and supply chain assessment. WHO Publications.

Zivanai, O., Mushure, P., & Mutandwa, E. (2021). Procurement reforms in Zimbabwe: Emerging issues and impact on service delivery in the public sector. Academia Letters, 2, 1–12.

APPENDIX 1



STRUCTURED QUESTIONNAIRE

My name is Collen Rutsate B252007A , I am a student at Bindura University, pursuing Master of business leadership and corporate governance degree, I am carrying out a study focused on Optimizing Public Procurement Frameworks to Enhance Healthcare Delivery in Zimbabwe's Central Hospitals

You are cordially invited to participate in this academic study. This questionnaire seeks to gather data on public procurement practices and their effects on healthcare delivery in Zimbabwe's central hospitals. Your participation is entirely voluntary and responses will remain strictly confidential and anonymous. Please do NOT write your name anywhere on this questionnaire. This exercise is purely for academic research purposes. Completion will take approximately 20–25 minutes.

SECTION A: Demographic and Institutional Information

Please tick (✓) or fill in the appropriate response.

1. Institution:

Tick where appropriate	

• Parirenyatwa Group of Hospitals	
• Sally Mugabe Central Hospital	
• Chitungwiza Central Hospital	
• PRAZ /	
• Ministry of Health & Child Care	

2. Current Designation / Role:

Tick where appropriate	
• Procurement Officer	
• Supply Chain Manager	
• Hospital Administrator	
• Pharmacy Manager	
• Finance / Accounts Officer	
• Internal Auditor	
• PRAZ / Regulatory Officer	
• Other (please specify): _____	

•

3. Years of Experience in Current Role:

Tick Where appropriate	
• Less than 2 years	

• 2 – 5 years	
• 6 – 10 years	
• 11 – 15 years	
• More than 15 years	

4. Highest Level of Education Attained:

Tick Where Appropriate	
• Certificate / Diploma	
• Bachelor's Degree	
• Postgraduate Diploma	
• Master's Degree	
• Doctoral Degree	

5. Gender:

Tick were appropriate	
• Male	
• Female	
• Prefer not to disclose	

SECTION B: Regulatory Framework Effects on Timely Delivery of Medical Supplies (H1)

Instructions: Please indicate the extent to which you agree with each of the following statements by ticking (✓) in the appropriate column. The scale is: SA = Strongly Agree (5), A = Agree (4), N = Neutral (3), D = Disagree (2), SD = Strongly Disagree (1).

Statement	**SA (5)**	**A (4)**	**N (3)**	**D (2)**	**SD (1)**
1. The current legal and regulatory framework governing public procurement in Zimbabwe is clearly defined and easy to implement.	☐	☐	☐	☐	☐
2. Procurement regulations are consistently applied across all departments in my institution.	☐	☐	☐	☐	☐
3. Regulatory compliance requirements frequently cause delays in the procurement of essential medicines and medical supplies.	☐	☐	☐	☐	☐
4. The requirement for multiple approval layers in the procurement process slows down the delivery of critical medical supplies.	☐	☐	☐	☐	☐
5. The Public Procurement and Disposal of Public Assets (PPDPA) Act adequately addresses the unique procurement needs of public health institutions.	☐	☐	☐	☐	☐

Statement	SA (5)	A (4)	N (3)	D (2)	SD (1)
6. My institution frequently experiences stockouts of essential medicines due to procurement process delays attributable to regulatory constraints.	☐	☐	☐	☐	☐
7. Procurement officers have sufficient authority to make emergency procurement decisions when supply of critical medicines is at risk.	☐	☐	☐	☐	☐
8. The regulatory framework provides adequate provisions for emergency and sole-source procurement of life-saving medicines.	☐	☐	☐	☐	☐
9. Procurement audits and compliance checks are conducted frequently enough to improve procurement performance.	☐	☐	☐	☐	☐
10. The regulatory framework effectively prevents corruption and misuse of procurement funds in my institution.	☐	☐	☐	☐	☐

SECTION C: Competitiveness of Procurement Procedures and Healthcare Delivery Effects (H2)

Instructions: Please indicate the extent to which you agree with each of the following statements by ticking (✓) in the appropriate column using the same five-point scale as Section B.

Statement	**SA (5)**	**A (4)**	**N (3)**	**D (2)**	**SD (1)**
1. The current tendering procedures in my institution attract a sufficient number of qualified medical suppliers.	☐	☐	☐	☐	☐
2. Procurement procedures in my institution are transparent and promote fair competition among suppliers.	☐	☐	☐	☐	☐
3. The evaluation criteria used in procurement tender adjudication are objective and consistently applied.	☐	☐	☐	☐	☐
4. Supplier qualification requirements for medical procurement are proportionate and do not unnecessarily exclude competent suppliers.	☐	☐	☐	☐	☐
5. The procurement processes in my institution result in the acquisition of high-quality medical supplies at competitive prices.	☐	☐	☐	☐	☐

Statement	SA (5)	A (4)	N (3)	D (2)	SD (1)
6. Procurement procedures are completed within the statutory timeframes stipulated by PRAZ guidelines.	☐	☐	☐	☐	☐
7. Corruption and tender manipulation are significant challenges in the procurement of medical supplies in my institution.	☐	☐	☐	☐	☐
8. The current procurement system ensures value for money in medical resource acquisition.	☐	☐	☐	☐	☐
9. The overall competitiveness of procurement procedures positively influences the quality of healthcare delivery in my institution.	☐	☐	☐	☐	☐
10. Procurement inefficiencies have directly contributed to adverse patient outcomes in my institution.	☐	☐	☐	☐	☐

SECTION D: Digitalized Procurement Optimization Framework (H3)

Instructions: Please indicate the extent to which you agree with each of the following statements by ticking (✓) in the appropriate column using the same five-point scale.

Statement	**SA (5)**	**A (4)**	**N (3)**	**D (2)**	**SD (1)**
1. My institution has adequate information technology (IT) infrastructure to support a fully digitalized procurement system.	☐	☐	☐	☐	☐
2. The procurement staff in my institution possess sufficient digital literacy skills to operate an e-procurement platform effectively.	☐	☐	☐	☐	☐
3. Implementing a digitalized procurement system would significantly reduce the time required to complete procurement cycles.	☐	☐	☐	☐	☐
4. A digital procurement system would improve the transparency and accountability of medical supply acquisition in my institution.	☐	☐	☐	☐	☐
5. Electronic tendering platforms would attract a larger pool of qualified pharmaceutical and medical equipment suppliers.	☐	☐	☐	☐	☐

Statement	SA (5)	A (4)	N (3)	D (2)	SD (1)
6. Digitalized procurement would result in cost savings through automated price comparison and supplier evaluation.	☐	☐	☐	☐	☐
7. A centralized digital procurement database would improve inventory management and reduce medicine stockouts.	☐	☐	☐	☐	☐
8. My institution's leadership is supportive of the adoption of digital procurement technologies.	☐	☐	☐	☐	☐
9. Legal and regulatory frameworks currently in place are adequate to support the implementation of digital procurement in Zimbabwe's central hospitals.	☐	☐	☐	☐	☐
10. Overall, the implementation of a digitalized procurement framework would significantly enhance healthcare delivery outcomes in Zimbabwe's central hospitals.	☐	☐	☐	☐	☐

Section D (Continued): Open-Ended Questions

Please provide brief written responses to the following questions:

D11. What are the three most significant barriers to the implementation of a digitalized procurement system in your institution?

Answer:

_____

_____

_____

_____

D12. What specific features would you prioritise in the design of a digitalized procurement optimization framework for Zimbabwe's central hospitals?

Answer:

_____

_____

_____

_____

D13. Are there any additional comments or observations you wish to share regarding public procurement and healthcare delivery in your institution?

Answer:

_____

_____

_____

_____

THANK YOU FOR YOUR VALUABLE PARTICIPATION

APPENDIX B

SEMI-STRUCTURED INTERVIEW GUIDE

Optimizing Public Procurement Frameworks to Enhance Healthcare Delivery in Zimbabwe's Central Hospitals

Preamble for Interviewer: This interview guide is designed to elicit in-depth qualitative data from purposively selected key informants regarding procurement regulatory frameworks, procedural competitiveness, and digital procurement readiness in Zimbabwe's central hospitals. The interviewer should introduce the study, obtain signed informed consent, seek permission to audio-record, and assure the participant of confidentiality and anonymity before commencing. Questions should be asked conversationally, with probing follow-up questions used where clarification or elaboration is needed. Estimated interview duration: 45–75 minutes.

Participant Particulars (For Researcher Use Only — Not Disclosed in Report)

Participant Code	
Date of Interview	
Interview Mode (In-person / Video)	
Duration	
Institution / Organisation	

Theme A: Regulatory Framework Effects on Timely Medical Supply Delivery (Objective 1 / H1)

A1. Could you describe the key legislative and regulatory instruments that govern public procurement of medical supplies in your institution?

Probes: Which specific Acts or regulations do you find most impactful on daily procurement operations? Are there any provisions you consider outdated or inadequate?

A2. In your professional experience, how have procurement regulatory requirements affected the timely delivery of essential medicines and medical equipment to your institution?

Probes: Can you describe a specific incident where a regulatory requirement caused a critical delay? What were the consequences for patient care?

A3. How effective are the current emergency procurement provisions for life-saving medicines and medical devices in your institution?

Probes: Are emergency procurement processes activated easily? What barriers exist? How could these provisions be improved?

A4. How do you assess the compliance culture around procurement regulations within your institution, and what factors facilitate or undermine regulatory compliance?

Probes: Is there adequate procurement training? Are regulations consistently interpreted across departments? What role does institutional leadership play in promoting compliance?

Theme B: Competitiveness of Procurement Procedures and Healthcare Delivery Impacts (Objective 2 / H2)

B1. How would you characterise the level of competition among medical suppliers in the current tendering processes conducted by your institution?

Probes: Do you receive adequate bids for medical tenders? Are there suppliers who are consistently favoured? What barriers prevent new or smaller suppliers from participating?

B2. To what extent do you consider the current procurement evaluation and tender adjudication criteria to be transparent, objective, and consistently applied?

Probes: Have you observed any cases of tender manipulation or irregular adjudication? What accountability mechanisms exist when irregularities are identified?

B3. How has the current procurement system affected the quality, cost, and availability of medical supplies in your institution, and by extension, the quality of healthcare delivered to patients?

Probes: Can you quantify or illustrate any direct links between procurement performance and patient care outcomes? What specific improvements to procurement procedures would most immediately benefit healthcare delivery?

B4. What structural or systemic reforms to the procurement procedures would you recommend to enhance competitiveness and value for money in medical procurement?

Probes: What lessons can be drawn from comparable regional health systems such as South Africa or Kenya? Are there best practices from private sector procurement that could be adapted?

Theme C: Designing a Digitalized Procurement Optimization Framework (Objective 3 / H3)

C1. How would you assess the current state of information technology infrastructure and digital readiness in your institution in relation to the adoption of an e-procurement system?

Probes: What hardware, software, and connectivity gaps currently exist? What investment would be required to achieve digital procurement readiness? Is institutional leadership supportive of digital transformation?

C2. In your view, what specific functional modules or features should a digitalized procurement optimization framework for Zimbabwe's central hospitals include?

Probes: Should the system include supplier pre-qualification databases, automated tender notifications, electronic bid submission, digital contract management, and inventory integration? What other features are priorities?

C3. What legal, institutional, and human resource preconditions would need to be satisfied before a digitalized procurement framework could be successfully implemented across Zimbabwe's central hospitals?

Probes: Are current procurement regulations compatible with e-procurement? Would legislative amendments be required? What staff training and change management strategies would be necessary?

C4. What risks or unintended consequences do you foresee in the implementation of a digitalized procurement system in Zimbabwe's central hospitals, and how should these be mitigated?

Probes: Consider risks such as cybersecurity threats, exclusion of small suppliers without internet access, data integrity challenges, and resistance from procurement staff. How can the framework be designed to be inclusive and resilient?

C5. Based on your experience and knowledge, how do you anticipate a successfully implemented digitalized procurement framework would affect procurement cycle times, cost-effectiveness, and ultimately the quality of healthcare delivery in Zimbabwe's central hospitals?

Probes: Can you cite examples from other public sector digitization initiatives in Zimbabwe or the region that demonstrate measurable improvements in service delivery? What success metrics should be built into the framework's monitoring and evaluation system?

Closing and Concluding Question

Z1. Is there anything else you would like to share regarding the optimization of public procurement frameworks for healthcare delivery in Zimbabwe's central hospitals that has not been covered in our discussion?

Closing Script for Interviewer: Thank you very much for your time and the valuable insights you have shared. Your responses will contribute significantly to this research, which aims to improve public procurement systems and ultimately healthcare outcomes in Zimbabwe's central hospitals. I will provide you with a summary of the emerging themes for member checking prior to finalization of findings. Please feel free to contact me should you wish to add or clarify anything discussed today.

APPENDIX C TURNITIN REPORTS



COLLEN RUTSATE

OPTIMIZING PUBLIC PROCUREMENT FRAMEWORKS FOR ENHANCED HEALTHCARE DELIVERY IN ZIMBABWE

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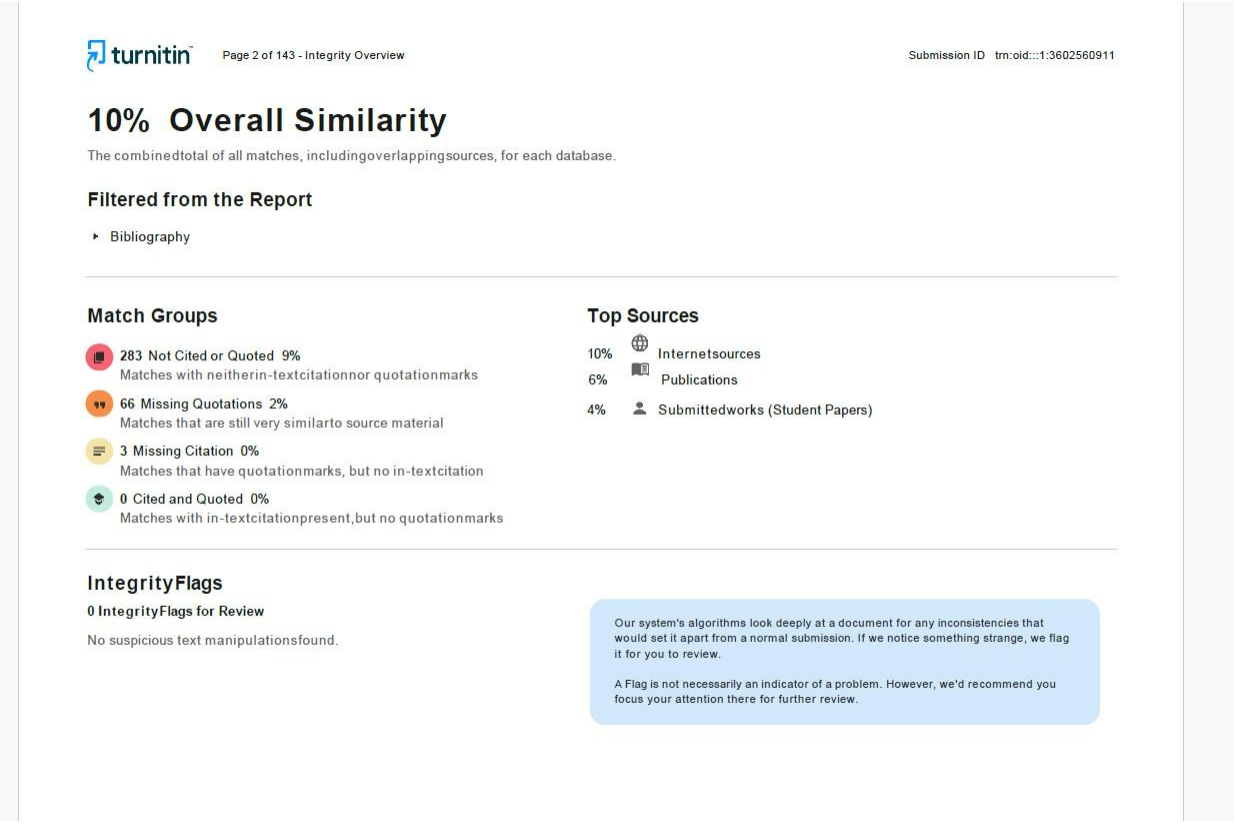

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